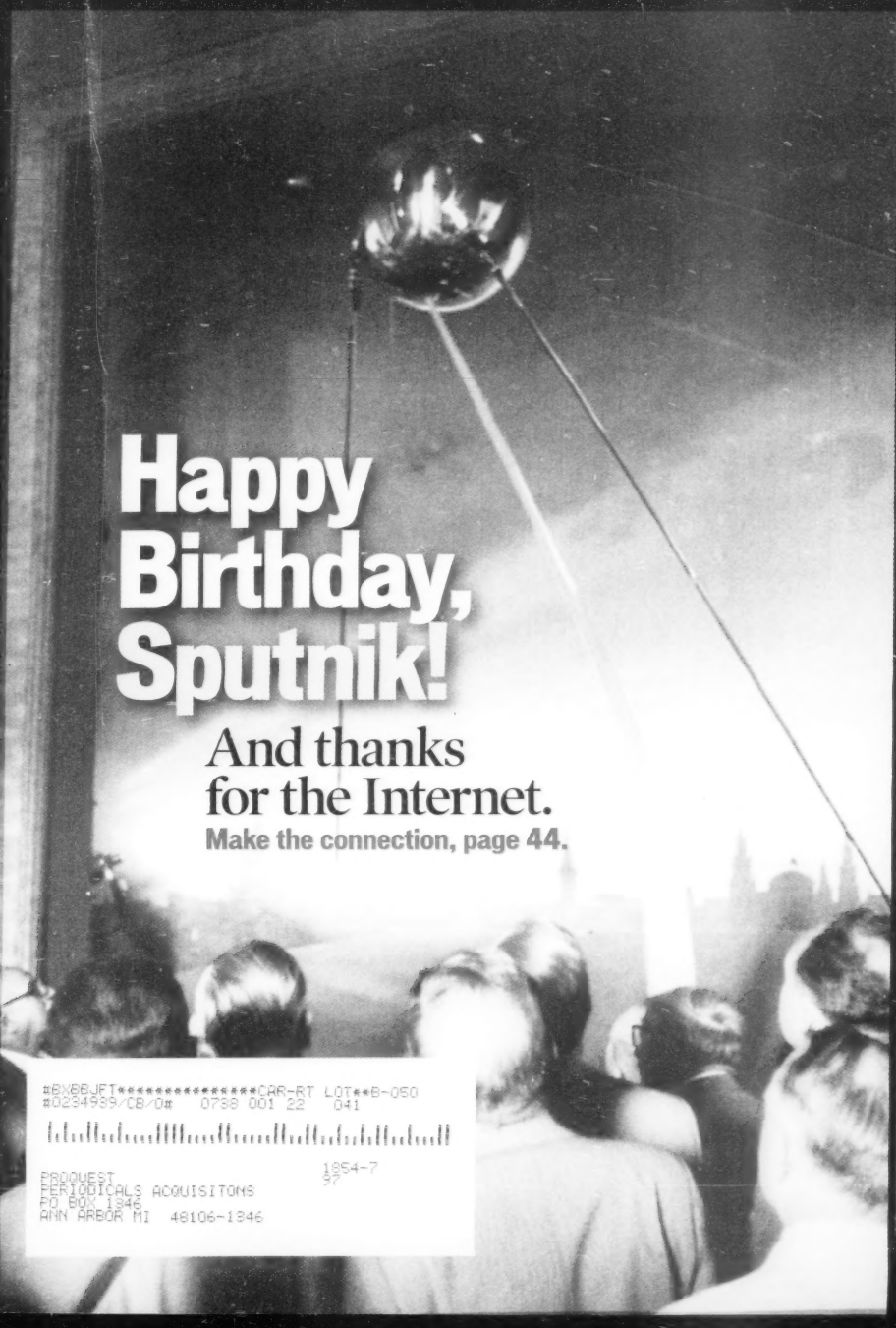
**Step Away From the Keyboard:** If you're under pressure to get more done, the worst thing you can do is work longer. PAGE 52

# COMPUTERWORLD®



## Happy Birthday, Sputnik!

And thanks for the Internet.

Make the connection, page 44.

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## Inside

OCTOBER 1, 2007
VOL. 41, NO. 40 $5/COPY

### News Analysis

**Some IT managers are resisting end users' efforts to deploy Web 2.0 technologies.** PAGE 14

**Tech workers with virtualization skills are in short supply, IT execs say.** PAGE 18

**THE GRILL: 'Godfather' of ARPA Charles Herzfeld laments the lack of leadership in government research.** PAGE 22

### Opinions

**Michael Gartenberg assesses Linux on the desktop and judges it no Windows-killer yet.** PAGE 41

### Careers

**IT pros recall great career advice they ignored – and why they're glad they did.** PAGE 53

### Don't Miss . . .

**Everything you need to know about social networking.** PAGE 56

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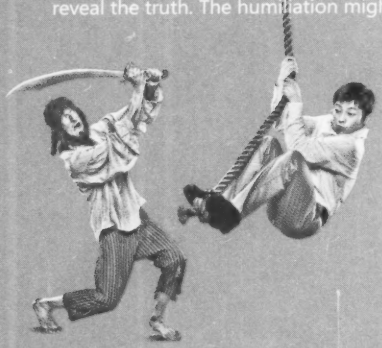
# beating back pirates. easy.

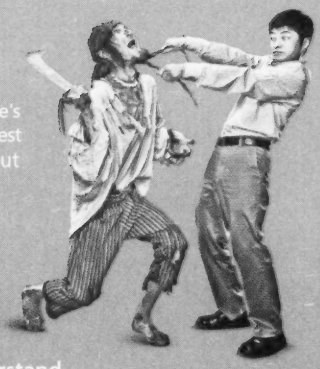
**1. Think like a Pirate.**
The best way to defeat a Pirate is to think and act like one. After a few days of grog-swilling, saber-rattling, and rigging-swinging, you'll be ready to take them on, *mano a mano*, as an equal. If nothing else, at least you'll have had a fun couple of days.

**2. Beat them, then join them.**
Life as a high-seas scalawag might not be so bad. You'll escape your cube, see the world, pillage and plunder, and generally have a grand old time. Study up on sea chantys, learn to dance a jig, wear a parrot on your shoulder, and you're off.

**3. Walking the plank.**
Pirates are big on getting their victims to walk the proverbial plank. Use this against them. Pose as a plank salesman; pitch a new, better plank, made from space-age composite materials, let's say. Ask them to "test the plank" and, once they're out on it, reveal the truth. The humiliation might just get them to leave.



**4. Pay them off.**
Pirates are obsessed with booty, or treasure. A supply of gold chocolate coins placed in a bag or chest will dazzle them. They'll want to bury it somewhere, secretly, and will lose whatever interest they had in you in the first place.



**5. Use your skills of Beard-Fu.**
Beard-Fu is the ancient art of facial hair combat. Grab and pull the Pirate's beard, twist his moustache, yank a sideburn—if done properly, it's the deadliest of all martial arts. Finding a Beard-Fu teacher can be hard nowadays, but instruction books are available and there's probably a Web site.

**6. Use threats they can understand.**
Threatening to call 911, threatening a lawsuit, threatening to call HR—these mean nothing to a seasoned old salty dog, raised on the sea with no law but the point of a cutlass. So don't even bother. Threaten instead to shiver his timbers with a fifty-pound cannonball and you'll see his attitude change quickly.

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# Inside

COMPUTERWORLD ■ OCTOBER 1, 2007

## ■ NEWS DIGEST

**8 BI tools** help the military support soldiers and allow BP to assess damage from hurricanes. | **Sun** announces its first two systems built around Xeon processors.

**10** Canadian officials have released a report detailing how the **TJX data breach** occurred. | **Intel** is laying off up to 10% of its IT staff.

**12** Beta testers give **Microsoft's Windows Server 2008**, a.k.a. Longhorn, a thumb's up – mostly.

PHOTODISC/GETTY IMAGES

**14 Advocates Overcoming IT Resistance to Web 2.0.** One of the roadblocks facing many Web 2.0 projects is the IT department.

**18 Desperately Seeking Virtualization Skills.** IT execs say it's hard to find workers who have experience with virtualization software.

## ■ OPINION

**6 Editor's Note:** Don Tennant suggests that you'll appreciate the work being done by the U.S. Army acquisition center if you think of the return on investment in terms of lives saved.

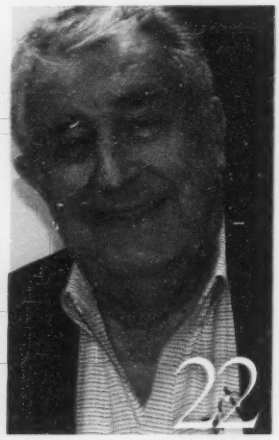
**41 Michael Gartenberg** assesses Linux on the desktop and judges it no Windows-killer yet.

**60 Paul Glen** ponders the right and wrong reasons to consider a career in IT management.

**68 Frankly Speaking: Frank Hayes** sums up some of the conventional wisdom that's pervasive in IT.

## ■ DEPARTMENTS

**20 On the Mark:** Do you know what's being said about your company or products online? The Salience Engine does, says Mark Hall.




**22 The Grill: Charles M. Herzfeld**, the "godfather" of ARPA, talks about the days of funding crazy ideas like computer networks, today's lack of effective leadership in government research and the price we may pay.

**56 QuickStudy: Online Social Networks.** These sites facilitate personal and professional connections in your town, your industry or around the world.

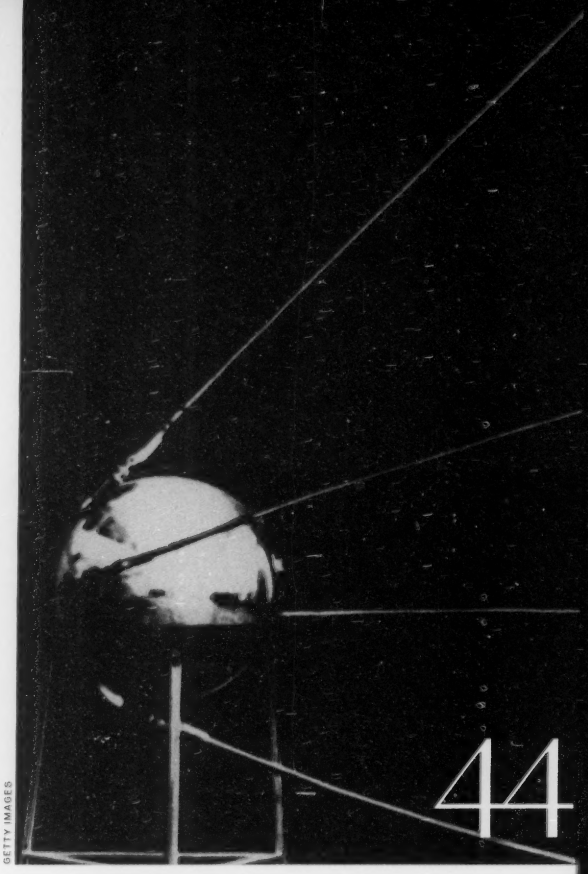
**58 Security Manager's Journal: Did Someone Say 'Extra Money'?** When your CIO invites you to come up with a wish list, some restraint is advisable.

**64 Career Watch:** The worst answer to give in a job interview; and business meets academia at Bentley College in Massachusetts.

**67 Shark Tank:** Shouldn't it be easier to put in an order for 66 years of production?

## ■ ALSO IN THIS ISSUE


| | |
|---|---|
| Letters | 7 |
| Company Index | 67 |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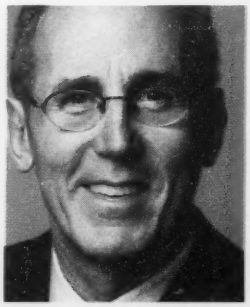
## ■ FEATURES


### 44 Happy Birthday, Sputnik!

**COVER STORY:** The little satellite hugely embarrassed the U.S. 50 years ago and led to a technological rebound that changed the world. But are we risking another humiliation?

### 53 Great Career Advice I Ignored

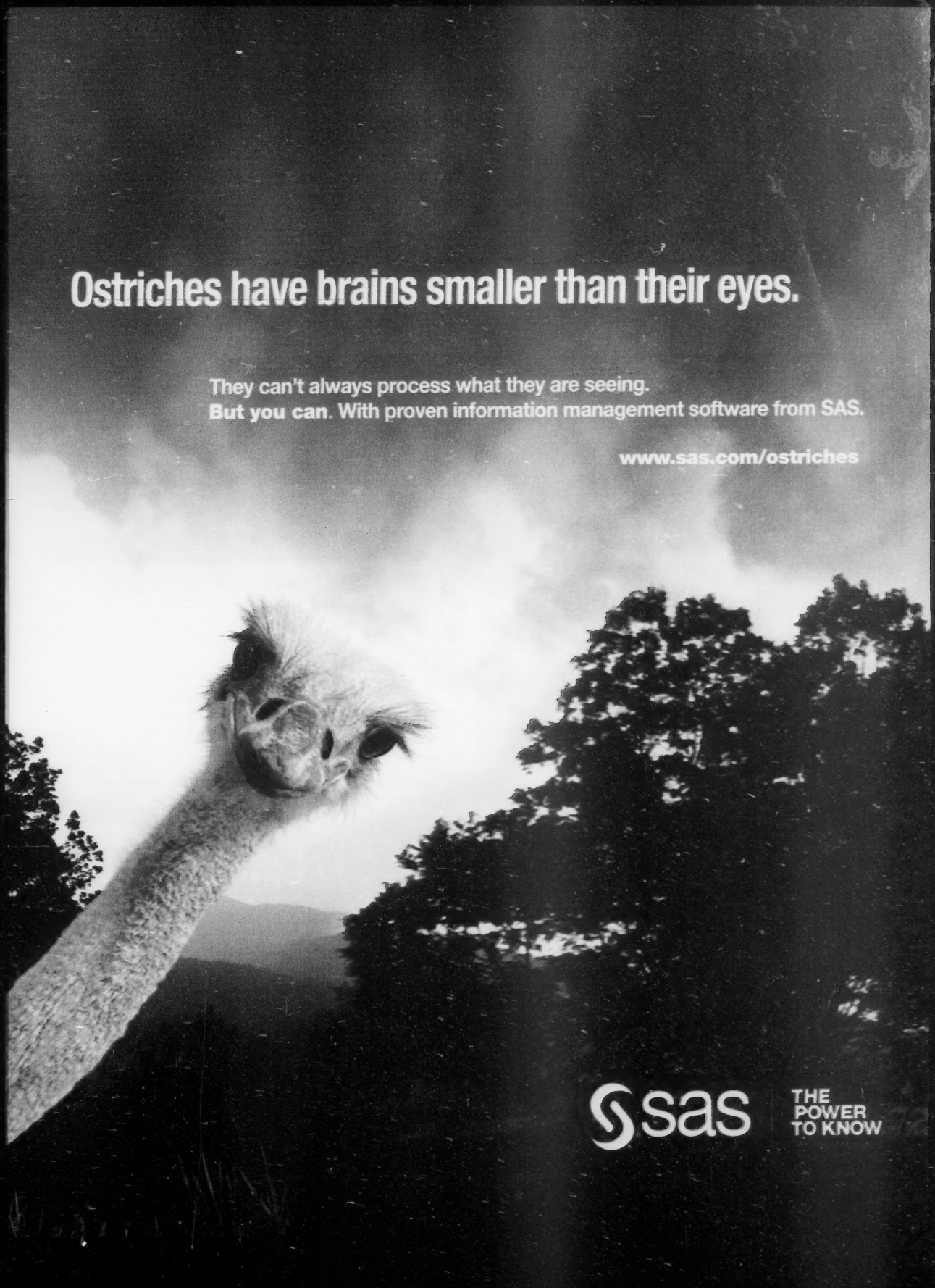
IT leaders who took career paths less traveled, such as Autumn Bayles and Dick Daniels, tell how their decisions led to success.




### 52 Q&A: Step Away From The Keyboard (And Other Productivity Tips)

If you're under pressure to get more done, the worst thing you can do is work longer hours. Manage your energy, not your time, says Tony Schwartz.


COVER IMAGE: GETTY IMAGES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# This Week Online

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## THE HORROR: 'Ghost Servers' That Haunt Your Bottom Line

These usually undocumented servers take up valuable real estate, consume increasingly expensive electricity and, in some cases, require ongoing maintenance and lease payments. computerworld.com/servers

## Microsoft's Stealth Updates Stymie XP Repairs

Users who reinstall Windows XP with the Repair option can't retrieve the full set of updates from Windows Update, one researcher says. **computerworld.com/software**

## Five Free Web Apps We Can't Live Without

From collaboration tools to database software and more, these next-gen Web applications keep the *Computerworld* newsroom humming. **computerworld.com/networking**

## Usability Test: Does iPhone Match the Hype?

We asked usability experts to compare the iPhone with two competitors to see if Apple's device lives up to the hype. They came up with an unequivocal answer.
**computerworld.com/mobilewireless**

# Blog Spotlight

## In One Era and Out the Other

Now that Web 2.0 is passé, it was all about Web 3.0 at this year's DemoFall conference in San Diego. Frank Hayes blogged live.
**computerworld.com/blogs/hayes**

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## The Halo 3 Hype Wave Finally Crests

Crazed fans camping on sidewalks to get a good place in line. People skipping work and school. Near-riots to get a hold of prized merchandise. All this for . . . a video game. Ian Lamont tries to make sense of it all.
**computerworld.com/blogs/node/6247**

OPINIONS

## Data Quality: The Forgotten Privacy Principle

Jay Cline wonders what exactly the law means by "data quality," and what it has to do with privacy.
**computerworld.com/itmanagement**

## Finding and Firing Your Security Risks

Jon Espenschied had an up-close view of Blackwater's contractors and has suggestions on how to avoid bad apples that could rot the whole barrel. **computerworld.com/security**

# SHARK BAIT BET

## Interview No-nos

The first step to hiring a trained IT professional is a phone interview with the candidate. One employer outlines the ways applicants can easily fail this first round.
http://sharkbait.computerworld.com/?q=node/1669

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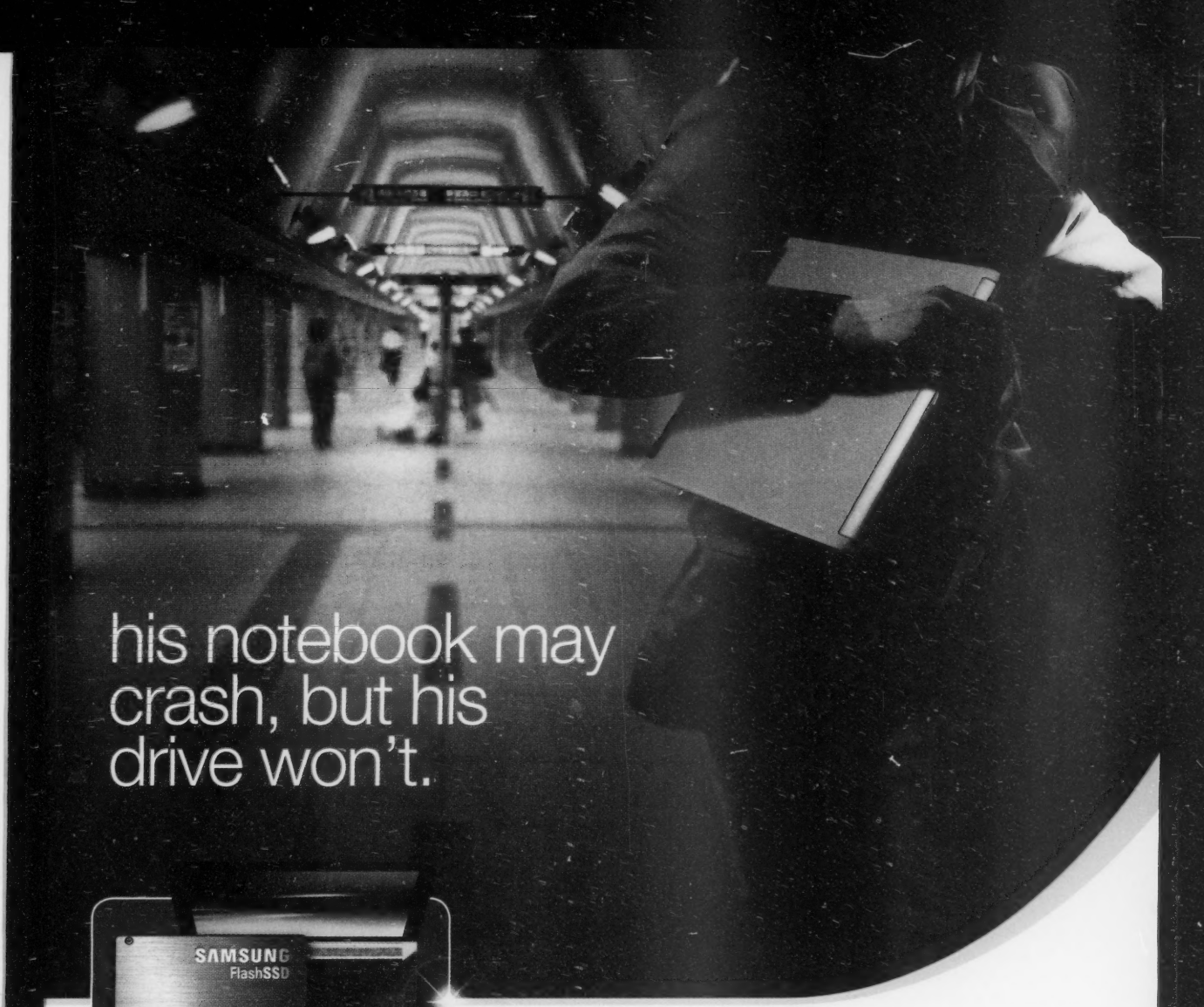
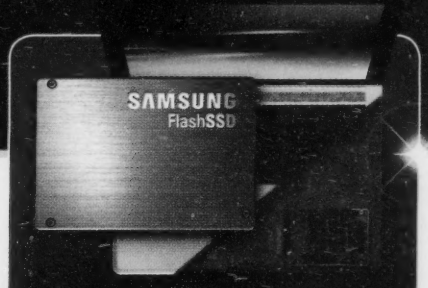


# his notebook may crash, but his drive won't.

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| active power consumption | < 0.5W |
| system boot speed[2] | < 24 sec |
| operating temperature | -25C ~ 85C |

[1]Mean Time between Failure
[2]HP NX9420, XP Pro, Core Duo Processor 2.0Ghz, 512MB RAM, ICH 7, i945 Chipset
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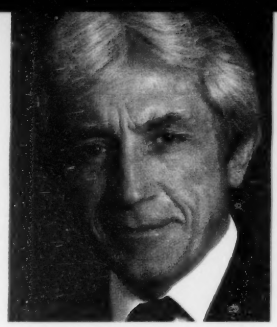
■ EDITOR'S NOTE

Don Tennant

# Ultimate ROI



A FEW WEEKS AGO, I wrote a column titled "Sacrifice," in which I addressed the idea of national service and the part that IT professionals might play in such a plan. I noted that the cause, especially when that national service is performed in a military capacity, entails genuine sacrifice. And I suggested as an aside that we should go out of our way to thank military families for the sacrifices they make.

A reader who posted a comment about the story on our Web site felt he had a better idea. "I think the best way to thank our military is to prevent its waste" by not deploying it where it isn't needed, he wrote.

That reader's comment came to mind last week as I was watching a presentation at *Computerworld*'s Business Intelligence Perspectives conference in Las Vegas. The presenter was Matthew Meinert, a business systems and IT division chief at the U.S. Army acquisition center at Fort Monmouth, N.J.

Meinert's presentation explained how BI is being used to ensure that our troops in Iraq are getting the equipment they need to do their jobs (see related story, page 8). He noted that his organization has oversight of $60 billion worth of equipment contracts and that his reporting requirements are enormous, with the GAO and Congress scrutinizing spending on the war. "I would [take] Sarbanes-Oxley anytime [over] what we have to go through," he said.

Meinert went on to stress that the acquisition center's BI strategy had yielded significant ROI to taxpayers, since it had enabled his team to manage a steep increase in contract transactions while weathering budget cuts that have resulted in a 66% reduction in personnel. "That would be humanly impossible without BI," he said.

Yet that ROI no doubt rings very hollow for many people who have serious reservations about the legitimacy of that $60 billion expenditure in the first place. They don't want to hear about savings incurred by managing that outlay more efficiently or with fewer people. They want to hear about saving those tens of billions of dollars by ending a war that they, like the reader I quoted earlier, consider needless and a waste of precious resources.

**■ Nineteen- and 20-year-old kids come up to Meinert and say, 'Thank you. What you're doing is keeping us alive.'**

While it's hard to argue that any war is anything more than a tragic waste, whether the one we're engaged in now is needless is a question whose answer is hotly debated by intelligent, good-willed people on both sides of the argument.

But the fact is, we are at war, so let's shift the business intelligence ROI discussion a bit. Suppose we think of the return on investment not in terms of dollars saved, but in terms of lives saved. Whether or not you believe our troops should be in Iraq, you certainly have to agree that an investment in BI that increases the percentage of young men and women who return home alive is a good one.

You see, there's a story behind the numbers. The contracts that Meinert and his team manage cover equipment such as night-vision goggles, IED jammers and "fire finder" radar gear that helps eliminate the threat of projectiles aimed at our troops.

"We're relying on this business intelligence right now to make sure these guys get the right equipment to fight the fight and to come back home safely," Meinert said. "We make sure that the unit getting the equipment is properly trained on it. We know when they're going to get it. If it's damaged in the field, we can make sure it gets to the depot for repair and gets back to them in a timely manner. We have a dashboard that tracks all that stuff."

And the payback?

"Nineteen- and 20-year-old kids come up to us and say, 'Thank you for what you're doing. What you're doing is keeping us alive.' " Meinert said. "It's really a moving experience, and we couldn't really do it without the business intelligence. That's why we have a passion for it.

"This technology is a godsend," Meinert said. Yeah, it is. Ask some of the kids who have come back from Iraq alive — the ultimate ROI — and they'll tell you that people like Meinert are, too. ■

**Don Tennant** *is editor in chief of* Computerworld. *Contact him at don_tennant@computerworld.com.*

## China's Advantage

In The Grill of Sept. 3, Peter J. Williamson talks about China's competitive edge being in its cost innovation. I have just returned from China, and at this point, I don't see the Chinese doing any real innovation. They are simply creating the same products with newer factories at a fraction of the labor cost. We have old factories in the U.S., and they are building new, improved factories. They don't have to invest in R&D; we have done that for them.

And lastly, they have 10 people lined up begging for every available job and can put twice as many people on a project at a fraction of the manpower cost.

■ **Joey Chessher,**
*MIS manager, Philadelphia, Joey_Chessher@yahoo.com*

## State IT Motivated By Different Factors

Patrick Thibodeau highlights recent success within the public sector at consolidating agency data centers into single statewide environments ["States Move Toward the Center on IT — Finally," News Analysis, Sept. 10].

The financial benefits of doing so, as he rightly points out, can be very large, as has been evident in the private sector for many years. We should applaud the momentum that has been achieved in West Virginia and Michigan.

However, there are some key differences between commercial organizations, where driving down cost is often a primary motivator for change, and government organizations, where politics can sometimes be a significant influencer.

State agencies and county-level IT bureaus have often historically operated in silos and, as Thibodeau points out, enjoyed a high level of autonomy from central state technology offices.

State CIOs may encounter significant resistance to change from agencies when attempting to bring more and more infrastructure and applications in-house, unless a pragmatic and truly collaborative approach is adopted.

Trust and respect must be nurtured on each side, and state offices should understand that agencies and counties are not accountable to the state. Instead, they should know that the state is there to provide a service to its agency customers.

Significant effort should be made upfront to establish rigorous policies, procedures, guidelines and service-level agreements on how the service is to be provided, along with clear governance structures and communication channels.

State CIOs may wish to look to well-proven frameworks such as ITIL in preparing for this. Attention to these issues will ensure that agencies are not left in the dark and that they are committed for the long term.

■ **Proteus Duxbury,** *principal consultant, PA Consulting Group, New York, p.duxbury@paconsulting.com*

## The Enterprise Isn't in Steve Jobs' Sights

Scot Finnie is absolutely right about Apple not being ready for the enterprise ["Apple Takes a Pass on the Enterprise Prize," *Computerworld.com*, Sept. 10].

As Apple's former director of federal sales, I can tell you that Steve Jobs does not want to do business with the enterprise. He doesn't want anyone telling him how to run his business or what features his products need.

He also wants to price products to match his ego and to change prices at his convenience. He wants to cancel products that he no longer likes whenever it pleases him, not his customers. You can't do those things with enterprise customers, and Jobs knows it.

■ **David Sobotta,** *Cape Carteret, N.C., dsobotta@coastalnc.org*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# News Digest

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## THE WEEK AHEAD

**MONDAY:** Adobe's Max 2007 North America users conference will get under way in Chicago, and SAP's TechEd '07 developers conference will kick off in Las Vegas.

**TUESDAY:** The Mobile Web Americas Conference and Expo will open in Orlando, with sessions on topics such as mobile commerce and social networking.

**THURSDAY:** eCrime '07, a two-day conference organized by the Anti-Phishing Working Group, will begin in Pittsburgh.

**BUSINESS INTELLIGENCE**

## Military, Oil Firm Use BI to Avert Disaster

**LAS VEGAS**

BUSINESS intelligence takes on new meaning when it's used to make sure U.S. soldiers get mission-critical equipment when they need it, or to ensure that oil companies can quickly get equipment fixed after a hurricane.

Matthew Meinert, group chief of business systems and technology at the U.S. Army Communications-Electronics Life Cycle Management Command Acquisition Center in Fort Monmouth, N.J., said that the military is using BI software widely to support soldiers in the Iraq war effort.

For example, Meinert told an audience at *Computerworld's* Business Intelligence Perspectives conference here last week, BI tools from Paris-based Business Objects SA are being used to search for defective batteries that could malfunction and cause explosions in Humvee vehicles.

"We can drill down, go into every contract we ordered that battery on . . . and get them away from units so no one will get hurt," he said.

Meinert said his group also hopes to use BI tools to provide soldiers with data that will help them work in specific types of environments, such as extreme heat.

Meanwhile, BP America Inc. in Houston is relying on a BI mashup to keep up with the wrath of Mother Nature.

After hurricanes Katrina and Rita devastated the Gulf Coast in 2005, BP wanted to be able to get data about the condition of its drilling equipment, pipelines and other apparatus more quickly, said information management director Steve Fortune.

The oil company turned to a BI mashup that links maps and geospatial data with company data to create a visual representation of its equipment in the Gulf of Mexico.

"If there is any kind of damage after a storm, we want to know about it very quickly," Fortune said at the conference. "We can then get into planning mode to get the right contractors in place to start repairs."

BP combined Microsoft Corp.'s Visual Earth software with Web services weather feeds, commercial satellite imagery and information from its own data warehouse, he said. The mashup was implemented this year.

Fortune said the mashup is also linked to BP's PeopleSoft human resources software to map employee home addresses, so BP can aid workers residing in heavily damaged areas.

*— Heather Havenstein*

**If there is any kind of damage after a storm, we want to know about it very quickly. We can then get into planning mode to get the right contractors in place to start repairs.**

INFORMATION MANAGEMENT DIRECTOR, BP AMERICA INC.

**HARDWARE**

## Sun Raises Curtain on Xeon Server Line

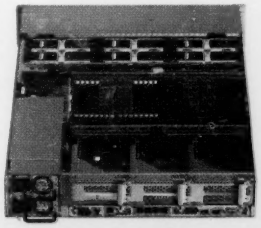
Eight months after it agreed to begin using Intel Corp.'s x86 chips again, Sun Microsystems Inc. last week announced a pair of rack-mounted servers built around Xeon processors.

The Sun Fire X4450 can hold four of Intel's Xeon 7300 quad-core processors; the Sun Fire X4150 has two sockets and can support Intel's older Xeon 5300 quad-core devices or its dual-core chips.

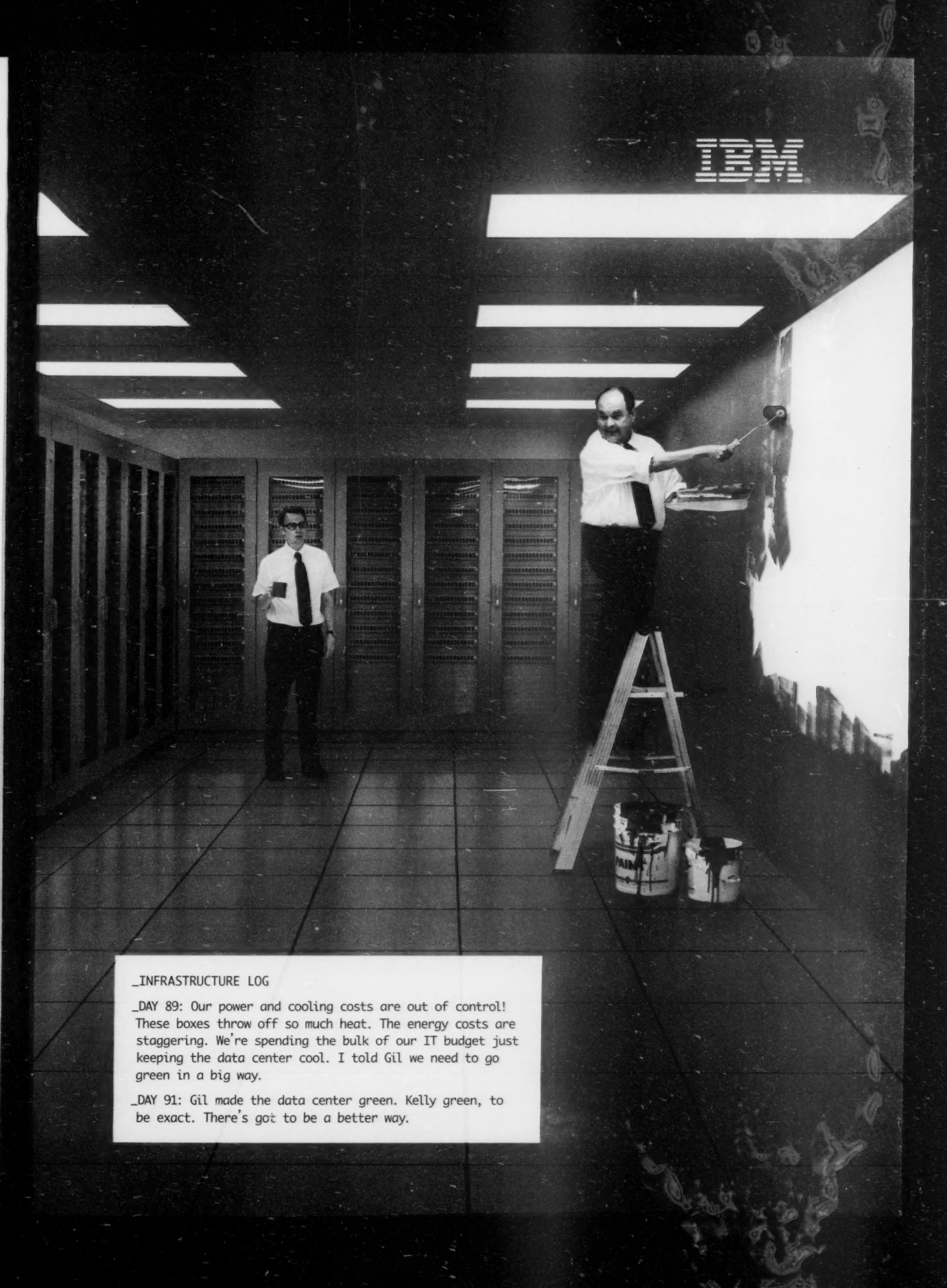
Bill Heilman, a platform specialist at Eastern Michigan University in Ypsilanti, has been beta-testing the X4450 and plans to use it in a consolidation project to help cut data center power costs. "We want to get away from server sprawl," he said.

Sun officials said a full line of Intel-based systems will follow. But the company also plans to ship machines based on Advanced Micro Devices Inc.'s new Opteron quad-core chip by year's end.

– PATRICK THIBODEAU



The Sun Fire X4450




_INFRASTRUCTURE LOG

_DAY 89: Our power and cooling costs are out of control! These boxes throw off so much heat. The energy costs are staggering. We're spending the bulk of our IT budget just keeping the data center cool. I told Gil we need to go green in a big way.

_DAY 91: Gil made the data center green. Kelly green, to be exact. There's got to be a better way.

AP PHOTO/GRAHAM HUGHES, THE CANADIAN PRESS

« Canadian privacy commissioners Jennifer Stoddart and Frank Work blamed TJX for the massive breach of its computers.

SECURITY

# TJX Offers Settlement as Breach Cause Is Exposed

**THE TJX COMPANIES INC.** late last month made a settlement offer to victims of a massive data breach at the retailer, just days before Canadian officials released a report disclosing for the first time how the intrusion occurred.

The company offered three years of credit monitoring services along with identity theft insurance to anyone whose personal data may have been compromised in the breach, which was disclosed in January. TJX also said it would reimburse consumers who had to replace their driver's licenses because of the compromise.

The company has said that the thieves gained access to 45 million credit and debit card numbers.

TJX would not disclose the settlement's projected cost but said it is included in previously announced fiscal 2008 and 2009 charges totaling $139 million.

The report issued last week by the office of Jennifer Stoddart, Canada's privacy commissioner, concluded that hackers gained access to the company's systems through poorly protected wireless networks at two TJX-owned Marshalls stores in Miami.

The data was stolen from servers that processed and stored TJX customer transactions, the report said. It also said that deletion technology used by the intruders has so far made it impossible to identify most of the affected content.

At a press conference in Montreal, Stoddart said the 20-page report lays blame for the breach squarely on TJX for collecting more customer information than necessary and for failing to adequately protect that data.

"The security measures ... relied on weak encryption technology," she said.

Frank Work, information and privacy commissioner for Alberta, Canada, added, "We are not interested in beating up on TJX. They got burned. But so did a lot of other institutions and ... customers. The value of this report lies in informing industry how not to get burned."

TJX did not respond to requests for comment on the report.

— *Jaikumar Vijayan*

## Short Takes

Electronic Data Systems Corp. has agreed to pay $490,902 to settle U.S. Securities and Exchange Commission charges of accounting irregularities. The SEC launched its investigation in 2002.

Microsoft Corp. is extending the deadline from Jan. 31 to June 30, 2008, for manufacturers and retailers to halt sales of PCs running Windows XP. The third parties had sought the extension because sales of the new Windows Vista operating system have been slower than expected.

The U.S. Department of the Treasury has awarded AT&T Inc. a $270 million deal to build a next-generation voice, data and video network. The network will be part of the government's $20 billion Networx Universal program.

Network equipment vendor 3Com Corp. has agreed to be acquired by Bain Capital LLC and Huawei Technologies Co. for $2.2 billion. Huawei had been a partner with 3Com in a joint venture until late last year.

CAREERS

# Intel Cuts IT Staff To Boost Efficiency

**INTEL CORP. IS CUTTING** its IT staff by as much as 10% as part of an effort to make its internal operations more efficient.

"We're in a very competitive environment and need to stay agile and efficient," said Intel spokesman Chuck Mulloy. He confirmed the layoff plans after being asked about an anonymous blog posting that described the process being used to cut workers based on assessments of their skills.

The blogger, who goes by the name Intel IT Guy, noted in his Intel Perspective Blog that the company is calling the layoff a "redeployment" internally.

"We are going through a skills assessment process for each employee, scoring them, comparing scores and then determining which skills we can most afford to lose," the blogger wrote. He said he thinks the goal is "to ensure that we're legally defensible and identifying people objectively."

> "No matter how we slice it, we will have to redeploy good people to hit our numbers. We're past the point of trimming the fat."
> – BLOG EXCERPT

But, the blogger wrote, "no matter how we slice it, we will have to redeploy good people to hit our numbers. We're past the point of trimming the fat."

Mulloy declined to discuss the specifics of the blogger's comments. But he said that as part of the redeployment process, workers can remain employed for up to two months while they look for other jobs within Intel.

– PATRICK THIBODEAU

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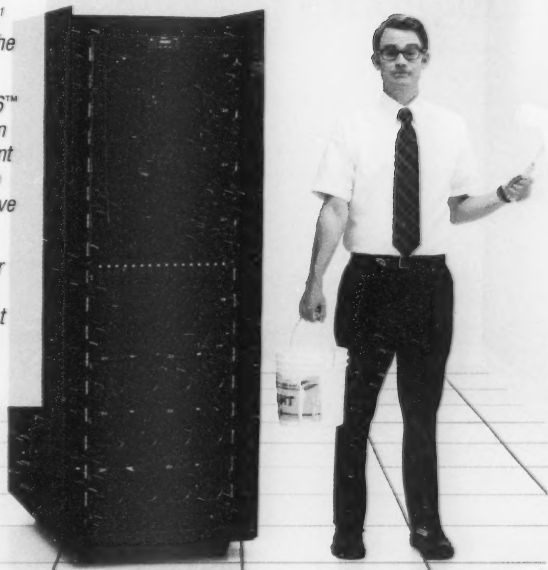

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1. Currently available on IBM System x and IBM BladeCenter servers. Expected to be available on IBM System i and System p servers 11/07. Energy management capabilities of IBM Systems Director are not available on IBM System z. 2. Advanced Power Virtualization is optional and available at an additional charge. 3. For complete details, go to ibm.com/takebackcontrol/claim. IBM, the IBM logo, Cool Blue, POWER6, System p, Take Back Control, System x, BladeCenter, System i and System z are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. ©2007 IBM Corporation. All rights reserved.

PHOTODISC/GETTY IMAGES

**BETWEEN THE LINES** *By John Klossner*

WE'LL NEED PERSONAL DATA FROM EVERY MEMBER of YOUR FAMILY, WHICH WE'LL STORE in CARDBOARD BOXES NEXT to the MALL DUMPSTERS...
GREAT!! NOW CAN I GET THE EXTRA 5% OFF?!!
TJX
CUSTOMER RESPONSE

**OPERATING SYSTEMS**

# Microsoft Begins Buildup To Longhorn's Release

**THE LONG MARCH** to the release of Windows Server 2008, a.k.a. Longhorn Server, continued last week, as Microsoft Corp. made the first "release candidate" version available for downloading from its Web site.

Several IT managers who are testing the beta predecessors of Release Candidate 0 said they're largely impressed, though not without some reservations.

Robbie Roberts, IT manager at Windrush Frozen Foods Ltd. in Oxford, England, has been using the upcoming operating system in live applications for two months.

"We were involved in the Windows Server 2003 rollout, and we had tons of [bug] problems," he said. "We absolutely expected tons of problems with Windows Server 2008. But — hand on heart — we've had none."

IT officials in Georgia's Fulton County, where Atlanta is located, said that Windows Server 2008 has made it easier to tighten security through steps such as locking down unused ports and preventing insecure systems from connecting to the county's network.

But, they added, there is still a lack of support for key third-party applications. As a result, the county doesn't expect to move most of those applications to the new operating system until a year from now, said Jay Terrell, deputy director of IT. "We're not rushing to put anything into production that would hurt our users," he noted.

*— Eric Lai*

## BENCHMARKS LAST WEEK

Microsoft Corp. released a beta version of its Service Pack 1 update for Windows Vista to an invitation-only group of about 12,000 users. That fulfilled a promise by the vendor that the initial SP1 beta would be out before the end of September.

SAP AG said that the federal judge who is overseeing Oracle Corp.'s intellectual property theft lawsuit against SAP has set a trial date of Feb. 9, 2009.

**30 YEARS AGO:** *Computerworld* published a story with the headline, " 'Ease of Use' Has Become Latest DP Buzzword."

# Global Dispatches

## China Jails Writers Of Panda Worm

**XIANTAO, CHINA** – A 25-year-old Chinese programmer who wrote and unleashed the Panda worm in China almost a year ago has been sentenced to four years in prison, according to the German news agency Deutsche Presse-Agentur.

Li Jun was arrested in February and charged last month with selling the worm, which was used to steal online game usernames and passwords. He earned about $13,000 (U.S.) from the sale, said senior technology consultant Graham Cluley at security software maker Sophos PLC in Abingdon, England.

Three other men, all in their 20s, were sentenced to between one year and two and a half years in jail for their part in spreading the worm, according to Deutsche Presse-Agentur.

**Gregg Keizer,**
*Computerworld*

## Cisco Signs Pact With Chinese Firm

**QINGDAO, CHINA** – Cisco Systems Inc., looking to boost its consumer business, has signed an agreement with Haier Co., based here, to jointly develop business processes and home networking systems.

Under the agreement, Haier, a manufacturer of large home appliances, and San Jose-based Cisco will share best practices in areas such as investments and financial management and controls.

A spokesman for Cisco declined further comment.

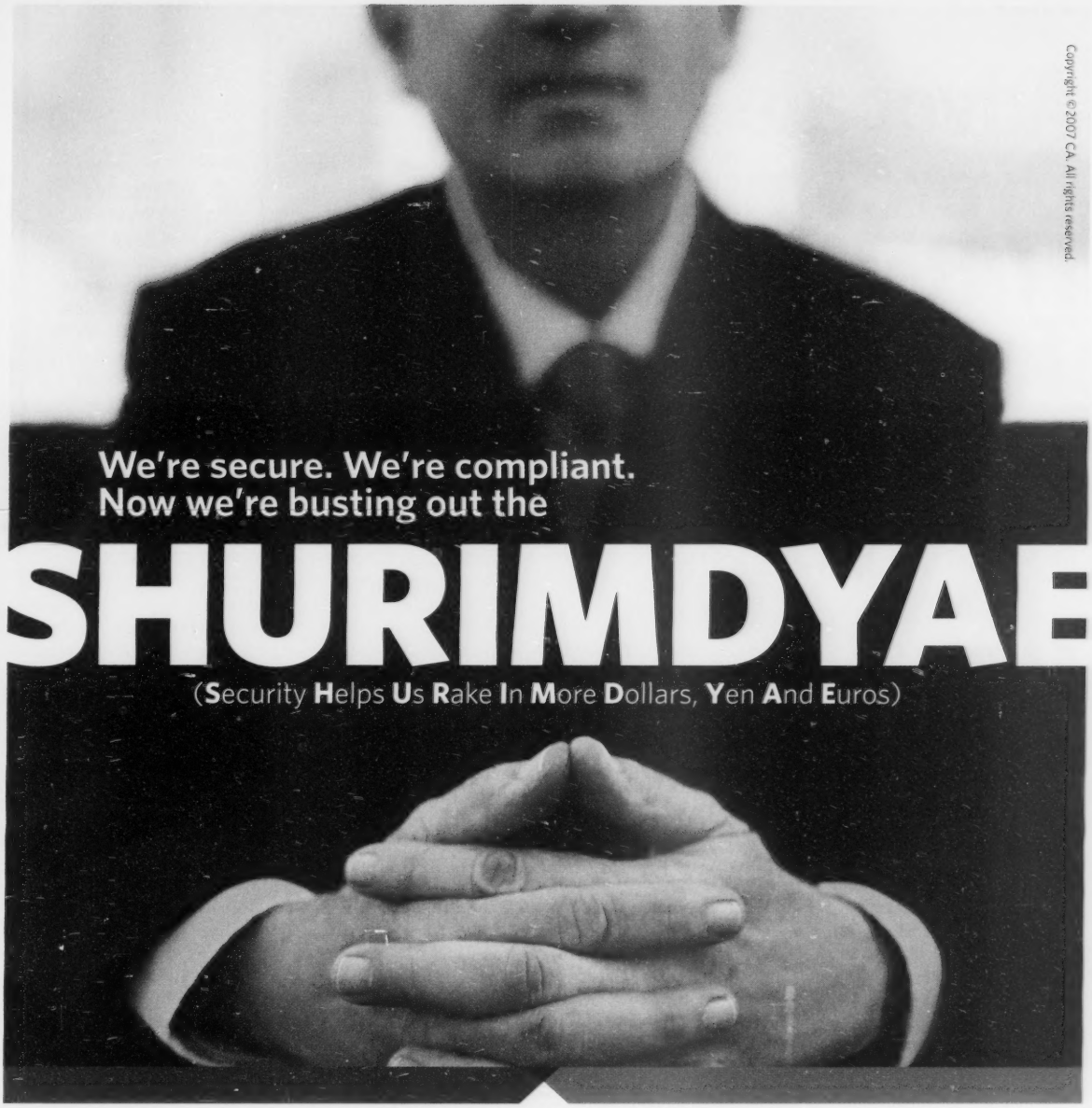
Haier CEO Zhang Ruimin said the company, which employs 50,000 people, is looking "to take advantage of Cisco's business practices as a model for efficient international expansion."

**Grant Gross,**
*IDG News Service*

### BRIEFLY NOTED

India's PC market grew by more than 22% in the quarter that ended June 30, as overall sales reached 1.53 million units. Hewlett-Packard Co. led the market with 22.2% of all sales, according to IDC (India) Ltd. Runners-up HCL Infosystems Ltd. and Lenovo Group Ltd. accounted for 12.8% and 10.3% of overall sales, respectively.

**John Ribeiro,**
*IDG News Service*

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# Advocates Overcoming IT Resistance To Web 2.0

## Grass-roots efforts show that security, compliance issues can be resolved.

**By Heather Havenstein**

WEB 2.0 TOOLS are slowly making their way to corporate users, often under the wings of champions who must work to overcome IT resistance to blogs, wikis, online communities and the like.

For example, Adam Carson said that Morgan Stanley's IT organization at times presented obstacles to his efforts to introduce such technologies to workers at the New York-based financial services firm.

Carson, an associate at Morgan Stanley, initiated the Web 2.0 effort there late last year by creating a network of 1,000 employees at LinkedIn Corp.'s professional networking site, LinkedIn.com.

At the start of the effort, he said, "most of our IT department didn't get it. This was all new to them. They had just been stuck in the world of enterprise IT."

However, he and a grass-roots team moved quickly to convince key members of Morgan Stanley's 10,000-person IT operation of the merits of Web 2.0 tools.

Those discussions have since prompted the firm's IT managers to invest in Asynchronous JavaScript and XML (AJAX) technologies, a key requirement for building and supporting Web 2.0 tools, he said.

Carson also noted that he has started working with IT managers to ensure that Web 2.0 applications meet federal regulations governing IT security at financial services businesses.

Today, Carson said, about 80 Web 2.0 projects are under way at Morgan Stanley.

The projects include the development of social communities to improve communication with clients and the creation of a system that can automatically turn e-mail groups into online forums. IT developers are also experimenting with Real Simple Syndication (RSS) and wiki applications, he said.

Corporate use of Web 2.0 "is not an 'if' anymore; it is a 'when' and 'how' these things will come to the enterprise," Carson said. "If you can tap into the power of your company better than your competitors . . . that is a competitive advantage."

Miko Coffey, head of digital media at the National Endowment for Science, Technology and the Arts (NESTA) in London, noted that she bypassed IT early on in some efforts to provide Web 2.0 technologies to the group's end users, because she didn't want the applications shut down.

Once she started the effort, "IT started to realize it was happening without them anyway," said Coffey. "They weren't interested until they started to get multiple requests from around the business. Eventually, they came on board."

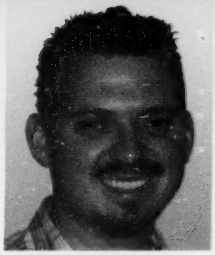
NESTA is now using the bookmarking site Del.icio.us to gather links needed to put together e-mail newsletters, and Web 2.0 tools such as Central Desktop from Central Desktop Inc. for project management and collaboration, Coffey added.

She also said that NESTA has started using many free Web 2.0 tools and that it has been easy to prove the value of the tools to management. "The value is instantly visible, especially when you do an ROI and your investment is zero," Coffey noted.

She acknowledged that, compared with a large company, it was probably easier for her small organization, which has 90 employees, to adopt the new technology, because it doesn't need to be integrated into a vast, complex IT system.

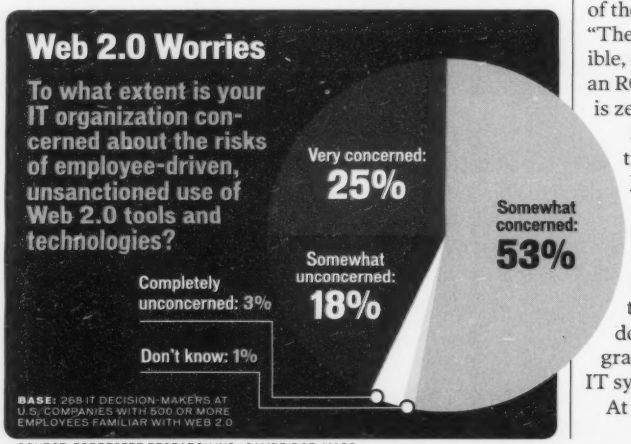
At Medtronic Inc., em-

*Continued on page 16*



**"We are trying to take the online community and snap it into our end-user feedback [mechanism]. We're going to open it up to the community to tell us what they want. We're going to put [some suggestions] right into silicon.**

**JOSH HILLIKER,** COMMUNITY MANAGER, INTEL CORP.'S VPRO EXPERT CENTER COMMUNITY


Web 2.0 Worries
To what extent is your IT organization concerned about the risks of employee-driven, unsanctioned use of Web 2.0 tools and technologies?
Very concerned: 25%
Somewhat concerned: 53%
Somewhat unconcerned: 18%
Completely unconcerned: 3%
Don't know: 1%
BASE: 268 IT DECISION-MAKERS AT U.S. COMPANIES WITH 500 OR MORE EMPLOYEES FAMILIAR WITH WEB 2.0

SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS.

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*Continued from page 14*

ployee demand for Web 2.0 tools has "exploded," said Scott Mark, an enterprise application architect at the Minneapolis-based medical device manufacturer.

However, he added, the company has had to move slowly in implementing the technology as IT personnel have worked to make sure it complies with health care industry regulations.

For example, he noted that all content in Web 2.0 collaboration tools must be archived. Also, because the company is regulated by the U.S. Food and Drug Administration, all content on its Web site — even that contributed by end users — must meet FDA requirements, he said.

"There is a real concern that we have to be aware of those things and make sure it is a message we are allowed to have out there," Mark added.

But such issues shouldn't stop IT organizations from offering Web 2.0 technologies to users, he said. "A lot of times, IT gets put in a big position of being the enforcers of these compliance issues," Mark said. "Some old-fashioned IT organizations are trying to shut [Web 2.0 efforts] down. Smart ones classify them as experiments [and then] take things to an enterprise level."

## SEEKING FEEDBACK

In August, Intel Corp.'s IT operation launched an online community to allow users, partners and others to recommend features to include in the next generation of its vPro chips.

"We are trying to take the online community and snap it into our end-user feedback [mechanism]," said Josh Hilliker, community manager of the site, called the Intel vPro Expert Center.

"We're going to open it up to the community to tell us what they want," he said. "We're going to put [some suggestions] right into silicon."

The chip maker created the site to help resellers and users share information and best practices for configuring and using vPro technology, which Intel first introduced a year ago.

"We need to decrease the integration time of vPro into IT shops," Hilliker said. "We're using the community to do that. We want to do knowledge transfer — take our intellectual data and pass it to the community. To think Intel has all the data doesn't work anymore."

Intel's vPro support team initially feared that the site would prompt a deluge of support calls. However, the site lets users get answers from one another, Hilliker said.

"We're hoping that as the community expands and we get more breadth and depth, [it] will respond faster than support," he added.

Oliver Young, an analyst at Forrester Research Inc., said it's likely that much of IT's frustration with calls for Web 2.0 tools stems from the fact that budgets generally earmark significant sums — often 80% of the total — for maintenance of existing systems.

Most corporate IT organizations also face large backlogs of requests for new systems, he noted.

Young said that despite IT's warnings, users often implement Web 2.0 tools on their own because "they are so easy to get started." Such covert implementations are "very, very frustrating for IT departments," he said.

According to a Forrester report released last month, 25% of IT shops are "very concerned" and 53% are "somewhat concerned" about the unsanctioned use of Web 2.0 tools.

The report was based on a survey of IT managers at 275 companies with 500 or more employees conducted between April and June. It found that 15% of workers overall are using tools such blogs, wikis and RSS for business purposes. Many are used without IT support, the study found.

GlaxoSmithKline PLC has decided to take its time deciding how it can best use Web 2.0 technologies.

Lee White, social media champion at the London-based pharmaceutical company, said that he has been given a year to explore how Web 2.0 tools can benefit GlaxoSmithKline.

White noted that demand for Web 2.0 tools generally bubbles up from users, unlike the traditional process where IT managers decide what products are used by workers. That shift could create significant challenges to implementing the technology at his firm, he said.

"The whole Enterprise 2.0 thing is a lot more about a cultural shift than a technology shift," White said.

"Big organizations have been built on the concept of the hierarchy. Information primarily resided at the top, and they could control how it went down," he explained. "Now, information has been disintermediated from the hierarchy. It is a different paradigm." ■

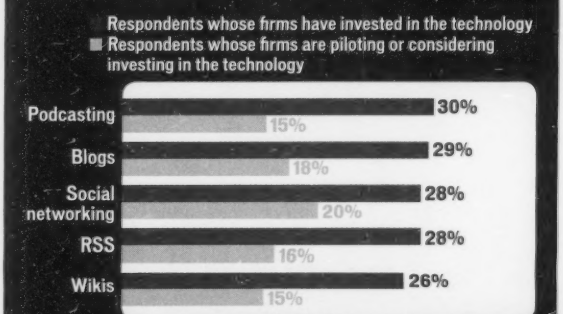
## Suggestions for Implementing Web 2.0 Tools

- Create Web 2.0 awareness.
- Locate supporters in the company.
- Make friends with IT.
- Approach senior management with a proposal.
- Work closely with business units.
- Gather and distribute best practices.
- Feed the open mouths; don't force it.
- Be patient, because change takes time.

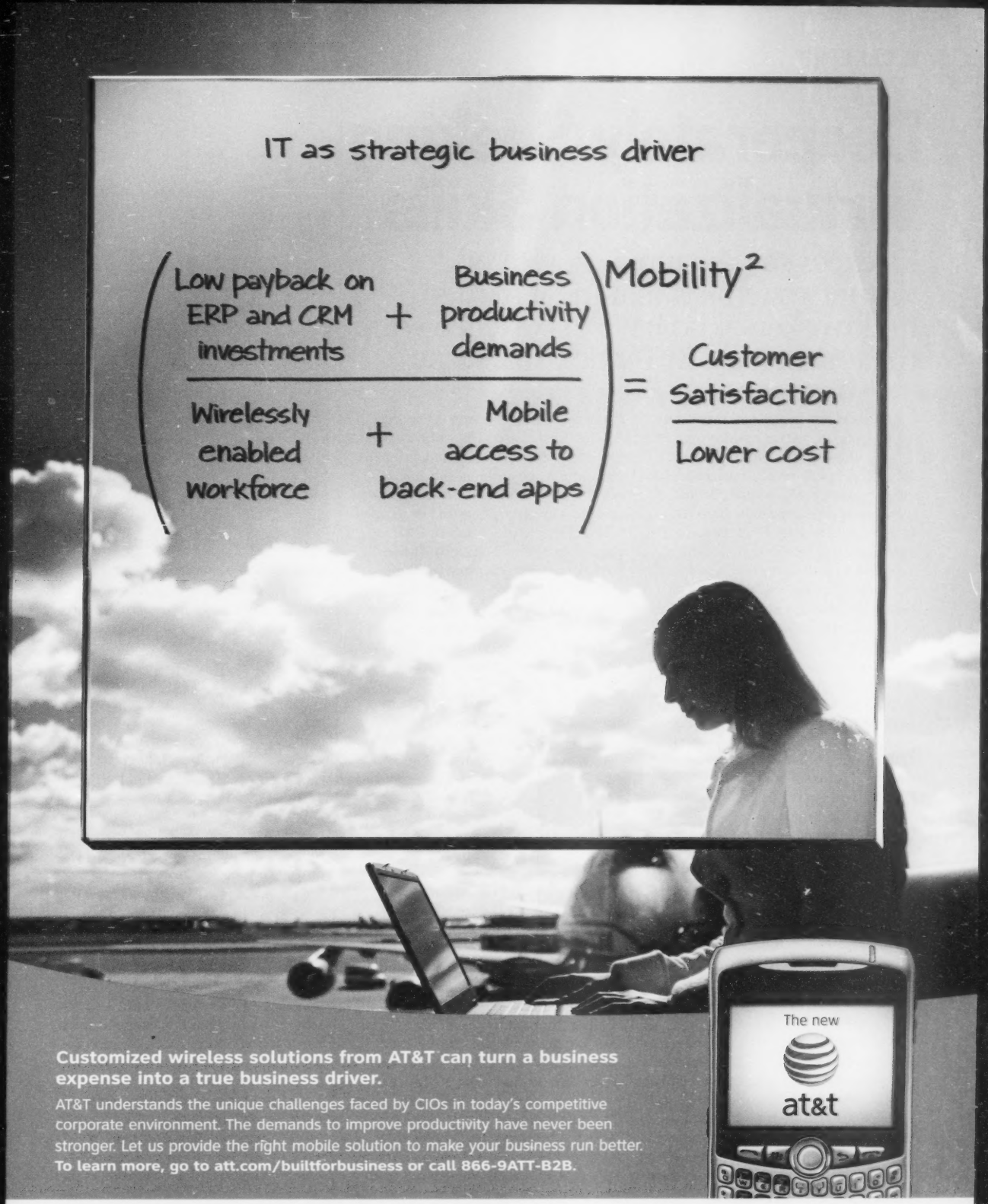
SOURCE: ADAM CARSON, MORGAN STANLEY

## Users Examine Social Networking

**What percentage of your employees are currently using the following technologies for business purposes either as part of a corporate initiative or on their own?**




**SOURCE:** FORRESTER RESEARCH INC. SURVEY OF 250-275 IT DECISION-MAKERS AT U.S. COMPANIES WITH 500 OR MORE EMPLOYEES FAMILIAR WITH EACH TECHNOLOGY, CONDUCTED APRIL-JUNE 2007

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# Desperately Seeking Virtualization Skills

## IT execs say the rapid growth of virtual systems is making it hard to find workers who have experience with the technology. By Patrick Thibodeau

AS MORE organizations adopt server virtualization software, they're also looking to hire people who have worked with the technology in live applications.

But such workers can be hard to find, as Joel Sweatte, IT manager at East Carolina University's College of Technology and Computer Science, recently discovered when he placed a help-wanted ad for an IT systems engineer with virtualization skills.

Sweatte received about 40 applications for the job at the Greenville, N.C.-based university, but few of the applicants had any virtualization experience, and he ended up hiring someone who had none. "I'm fishing in an empty ocean," Sweatte said.

To give his new hire a crash course in virtualization, Sweatte brought him to market leader VMware Inc.'s annual user conference in San Francisco last month. "That's a major expenditure for a university," Sweatte said of the conference and travel costs. "[But] I wanted him to take a drink from the fire hose."

> **"I'm fishing in an empty ocean.**
>
> IT MANAGER **JOEL SWEATTE**, ON HIS SEARCH FOR WORKERS WITH VIRTUALIZATION EXPERIENCE

Sweatte isn't the only IT manager who has had trouble finding workers who already have virtualization skills. VMware said its VMworld 2007 conference drew more than 10,000 people — up from about 7,000 at last year's event. But it was common to find conference attendees who were new to virtualization and largely self-taught on the technology.

For instance, Jeff Perry, IT manager at Cincinnati-based HealthBridge, began deploying virtualization software six months ago at the not-for-profit organization, which electronically connects area hospitals and other medical facilities so doctors can exchange patient data. Perry came to VMworld to pick up some additional technical skills and said he plans to spend a lot of time learning about virtual systems.

The conference was a good starting point for doing so, Perry said, "but there is so much research that you have to do after this."

And there's no question in Perry's mind that server virtualization has become a critical IT component. "Hardware right now is so underutilized," he said. "To carve out spaces for virtual machines is the wave of the future."

IT professionals can certainly train themselves to work with virtualization software, VMworld attendees said. But some added that it helps to have acquired a broad base of data center skills beforehand.

Minneapolis-based Jostens Inc., which makes class rings, yearbooks and other products, is a VMware user. "In the old days, you really just needed to understand the server," said Kirk Marty, a senior systems engineer at Jostens. "Now you have to understand not just the server, but also the command lines of the Linux operating system, networking, how switches work, storage and fiber connections."

JOHN LUND, SAM DIEPHUIS/GETTY IMAGES

Carter & Burgess Inc. in Fort Worth, Texas, decided to adopt virtualization technology about six months ago to improve its disaster recovery capabilities. Michael Youngers, a lead systems administrator for the storage and storage-area networking groups at the engineering and consulting firm, said that after the decision was made, he taught himself how to use the software. "I stumbled into it," Youngers said.

But after seeing how virtualization has led to server consolidation, the removal of old hardware, and lower power and cooling costs at Carter & Burgess, Youngers is convinced that it has become a technology that IT workers need to know. "You are going to have to get on board," he said.

Peter Marx, chief IT architect at Knorr-Bremse GmbH, has been involved in x86 server virtualization for several years. That makes the Munich-based manufacturer of truck and railroad components a relatively longtime user of the technology.

At first, Marx couldn't find anyone with virtualization skills. Such people "simply weren't available then," he said. IT workers at Knorr-Bremse attended some training programs to pick up virtualization know-how. But mostly, Marx said, "they simply did it." ■

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# On the Mark

**HOT TRENDS ■ NEW PRODUCT NEWS ■ INDUSTRY BUZZ BY MARK HALL**

MATTHEW FAULKNER

## Keep Tabs on Your Web Rep

SOCIAL NETWORKS, blogs and other online forums can make or break a reputation these days, be it a company's or a product's. But the sheer volume of verbiage being posted is all but impossible to track. Unless, of course, you've got a tireless computer with clever software designed to extract meaning from content.

Jeff Catlin, CEO of Lexalytics Inc. in Amherst, Mass., has such a program. Salience Engine crawls designated Web sites and compares adjective-noun and adverb-verb phrases to those in its database to distinguish positive, negative or neutral commentary about a subject, then it presents the results in a graphical report. (To see the software in action, visit *www.politicaltrends.info*, which keeps tabs on the ups and downs experienced by current presidential candidates.) Catlin acknowledges that the software "is not perfect." For example, it has trouble determining a pronoun's relation to an entity. But he hopes to fix that in an upcoming release. Companies involved in mergers and acquisitions can use the tool for due diligence. And brand-conscious firms can track the buzz about their wares. Although Salience Engine doesn't control the message, Catlin says, "it can help you see it coming." Pricing starts at $50,000.

**250k**
Number of phrases in Salience Engine's database used for text analysis.

### Get a Palette of Automation Options

Automating best practices in a data center is difficult, says Thor Culverhouse. The toughest nuts to crack for an autonomic specialist? Databases, says the CEO of Stratavia Corp. in Denver. That's true in part because the nuances of various databases make it hard to apply knowledge about, say, MySQL to DB2 or Oracle. Culverhouse claims that with Data Palette 4.0, available this week, it is now possible to automate tasks and decisions for virtually all database administrators. You can import your own scripted best practices into Data Palette or use the ones that come with the product. For example, Data Palette knows that ad hoc queries to any production database can be shut off when CPU performance is spiking. The new release adds predictive analytics so, for instance, DBAs will know in advance when storage will max out. Pricing begins at $150,000.

Automated database administration is possible, Culverhouse claims.

### Give Your Fleet Drivers Instant Skills Feedback

Statistics from the National Highway Traffic Safety Administration show that fleet drivers are twice as likely to have an accident as the average person behind the wheel (see "Watch Your Driving Because . . . ," On the Mark, May 21). Since most fleets are self-insured, those wrecks come right off the bottom line. Paige O'Neill, senior vice president of worldwide marketing at GreenRoad Technologies Inc. in Redwood Shores, Calif., argues that the best way to reduce fleet accidents is to use a tool that nags the operator like a backseat driver — only on the vehicle's dashboard. GreenRoad's Safety Center includes sensor technology that monitors how a driver is maneuvering. It analyzes and scores 120 actions in categories such as braking and turning, and flashes a red, yellow or green light to indicate the safety level of a given maneuver. The software reports through an online service back to a fleet manager so he can counsel drivers on their abilities. O'Neill says manufacturers are looking into integrating gear like Safety Center into dashboards, but it'll be a few years before vehicles come equipped with them. Pricing starts at $28 per driver per month. ■

**$21k**
Average cost of a fleet vehicle accident, according to OSHA.

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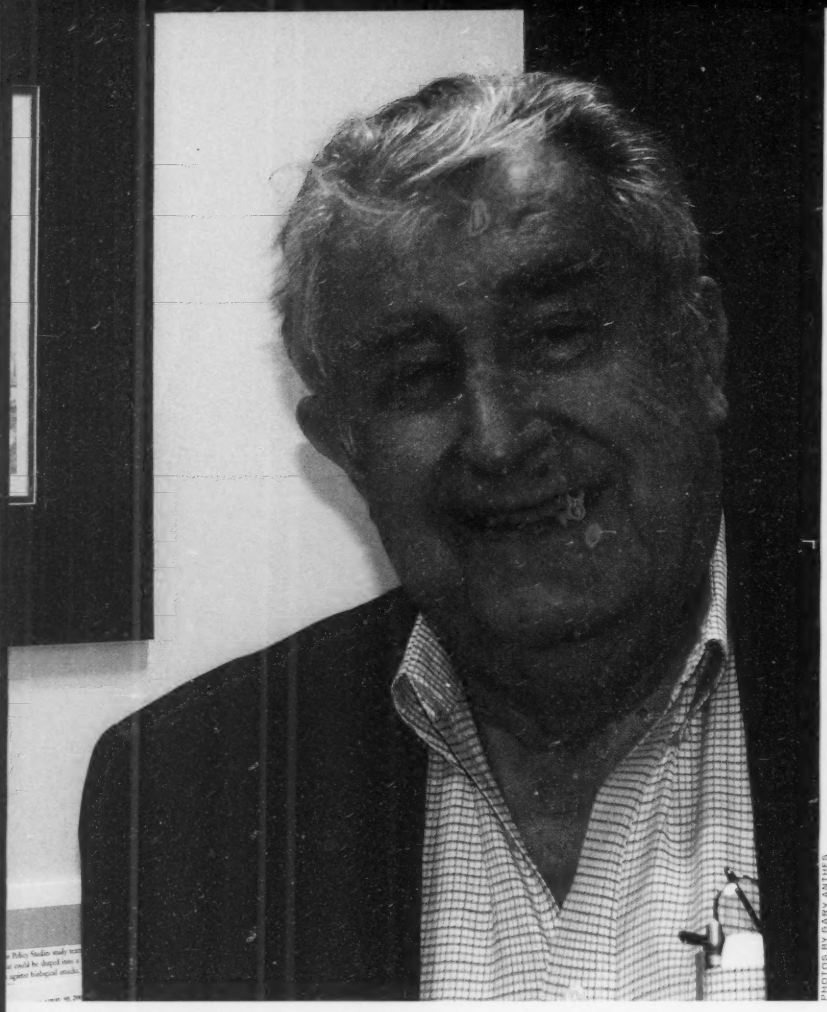


PHOTOS BY GARY ANTHES

## Dossier

**Name:** Charles M. Herzfeld

**Title:** Senior fellow, Potomac Institute for Policy Studies; former director, ARPA

**Location:** Arlington, Va.

**Favorite technology:** Google Earth and similar sites. "The modern magic carpet – [it] goes anywhere. [I] wanted one as a kid; now I have one."

**Technology pet peeve:** Software written for experts, not for regular users.

**Favorite nonwork pastime:** Scuba diving and underwater photography.

**Philosophy in a nutshell:** "You owe the world; don't ever give up."

**Epitaph:** "My life was a great trip. I was a grateful traveler."

**Ask him to do anything but:** "Clean up my office papers."

**Best movie ever:** *Casablanca*

**Something people don't know about him:** "I am really shy, in spite of appearances."

■ THE GRILL

# Charles M. Herzfeld

## The **'godfather' of ARPA** talks about the days of funding crazy ideas like **computer networks,** today's **lack of effective leadership in government research** and the price we may pay.

**COVER STORY**

**FOR MORE** on the early days of ARPA and how the launch of Sputnik led to the Internet, see our cover story on **page 44**.

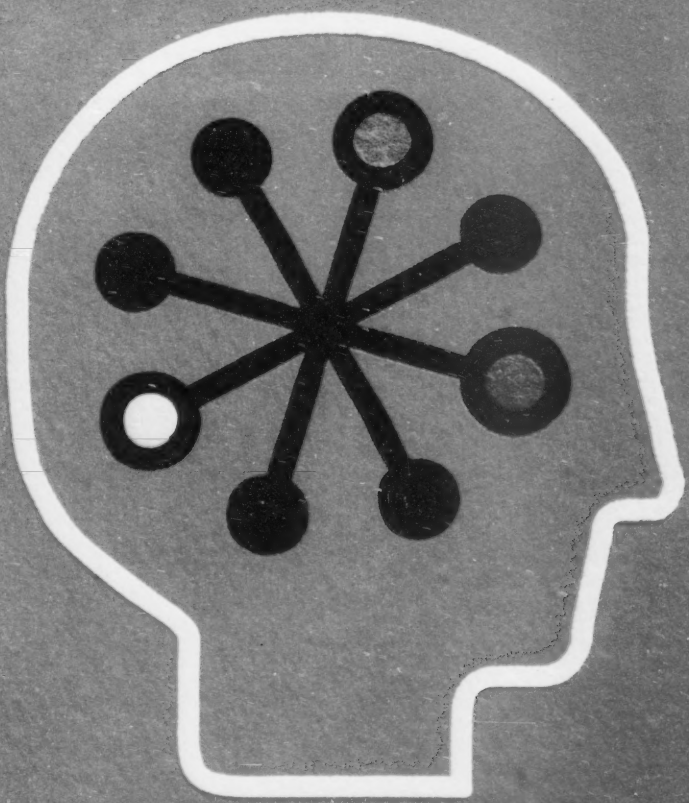
*Charles M. Herzfeld is currently a senior fellow at the Potomac Institute for Policy Studies in Arlington, Va. He was hired by the Advanced Research Projects Agency, better known as ARPA, in 1961 to head up research in ballistic missile defense, and he became ARPA's fifth director in 1965. (ARPA was later known as DARPA, after the word "defense" was added to the agency's name.) He also served as director of Defense Research & Engineering, to which ARPA reports, from 1990 to 1991.*

**What was your introduction to computing?** When I was a graduate student at the University of Chicago, in 1948 or so, John von Neumann came and gave three seminars on electronic computing. He was instrumental in getting the ENIAC built, and he came to tell us about it. It was hugely important stuff, and it changed my life absolutely.

Then, before ARPA, J.C.R. Licklider gave two or three lectures at the Pentagon, and I remember those vividly. He said, "The way we are doing computing is really pretty stupid. I think there's a better way." He was a brilliant man, and I became a disciple of his.

**And a few years later, you and Licklider would end up at ARPA together, with Licklider the first director of its Information Processing Techniques Office.** Yes. IPTO was one of the things at ARPA that I became godfather of. I was the go-to guy if it got into trouble.

*Continued on page 24*



ALTERNATIVE THINKING:

# A User's Guide.

Alternative Thinking About Business And Technology

Alternative thinking is recognizing that information technology is now business technology, and there's no going back.

It's realizing the proper role of technology in this era is not just to be safe and steady and reliable, but to spur the business to compete aggressively, imaginatively and daringly.

It's demanding that technology be judged not by arcane technical benchmarks, but by business metrics. (HP will help you meet them.)

It's working with HP to ignite innovation, demand simplicity, kill complexity and enforce efficiency to get to market before competitors even know what's coming.

Technology for better business outcomes.

hp.com/alt

ALTERNATIVE THINKING ABOUT SERVICES.

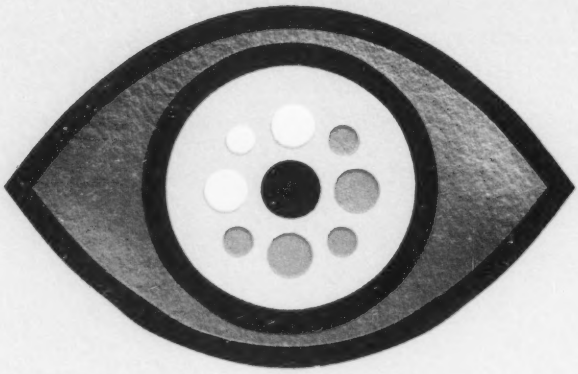
## Collaboration With A Single Objective (For Example, Dominating Your Competition).

Alternative thinking is acknowledging that IT is no longer merely a cost center, but the lifeblood of the business.

It's partnering with over 69,000 HP Services people who not only understand this fundamental shift in IT, but also had a hand in writing it.

It's a human face you can rely on to liberate your IT people, setting them free to drive innovation in the marketplace. (Viva la brains.)

It's demanding hard, cold business metrics and working with HP Services to reach them.



ALTERNATIVE THINKING ABOUT SOFTWARE:

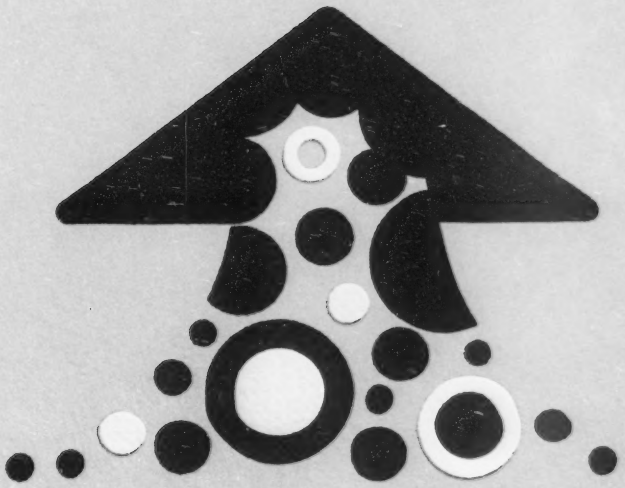
## Make Your Competition Call You Names (Like Omniscient).

Alternative thinking is designing software that makes your technology a slave to your business, not the other way around.

It's combining foresight, flexibility and control to encourage unyielding innovation and merciless productivity.

It's locking down requirements, testing ahead of time, monitoring after implementation and automating cumbersome processes (earning a few well-deserved pats on the back along the way).

It's demanding hard, cold business metrics and working with HP to reach them.



ALTERNATIVE THINKING ABOUT VIRTUALIZATION:

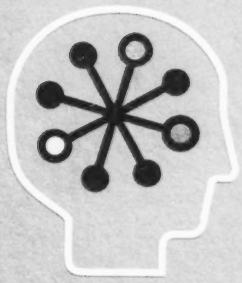
## Build In Cohesive Maneuverability. (Translation: Dare Anyone To Keep Up With You.)

Alternative thinking is pushing the boundaries of virtualization beyond servers and doing the same thing with your entire network, really.

It's deciding on a whim (i.e., strategic initiative) to add blades, move a server or reconfigure everything—without touching a single cable.

It's combining the power and maneuverability of virtualization with an HP BladeSystem to create the competitive edge to do what you want to do in business—win.

It's demanding hard, cold business metrics and working with HP to reach them.



Technology for better business outcomes. hp.com/alt

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# Congratulations to Our Finalists!

## The SNW "Best Practices in Storage" Award Recipients will Be Honored Wednesday, October 17th at Storage Networking World in Dallas.

Storage Networking World (SNW), in conjunction with Computerworld and the Storage Networking Industry Association (SNIA), proudly presents the tenth SNW "Best Practices in Storage" Awards Program. This program honors IT user "best practice" case studies selected from a field of qualified finalists.

*Finalists in each of the following categories are:*

### Innovation and Promise

- Alston & Bird, LLP, Georgia
- America Online (AOL), Virginia
- Defense Contract Management Agency (DCMA), Virginia
- Rice University, Texas
- Southcentral Foundation (SCF), Alaska

### Planning, Designing and Building a Strategic Storage Infrastructure

- American Society of Health-System Pharmacists, Maryland
- Carolinas HealthCare System, North Carolina
- IAC, New York
- Memorial Sloan-Kettering Cancer Center, New York
- Weill Cornell Medical College, New York

### Selecting and Deploying Storage Networks

- Garland Independent School District, Texas
- Lulu Press, Inc., North Carolina
- Medtronic, Minnesota
- Rackspace Managed Hosting, Texas
- US Army Corps of Engineers, Huntington District, West Virginia

### Storage Reliability and Data Recovery

- Cytec Industries Inc., Louisiana
- Databank, Alabama
- EFILM, California
- Raymond James Financial, Florida
- Saint Luke's Health System, Missouri

COMPUTERWORLD STORAGE NETWORKING WORLD

SNIA

**Best Practices IN STORAGE**

**AWARDS PROGRAM**

AWARDS PROGRAM EXCLUSIVELY SPONSORED BY:

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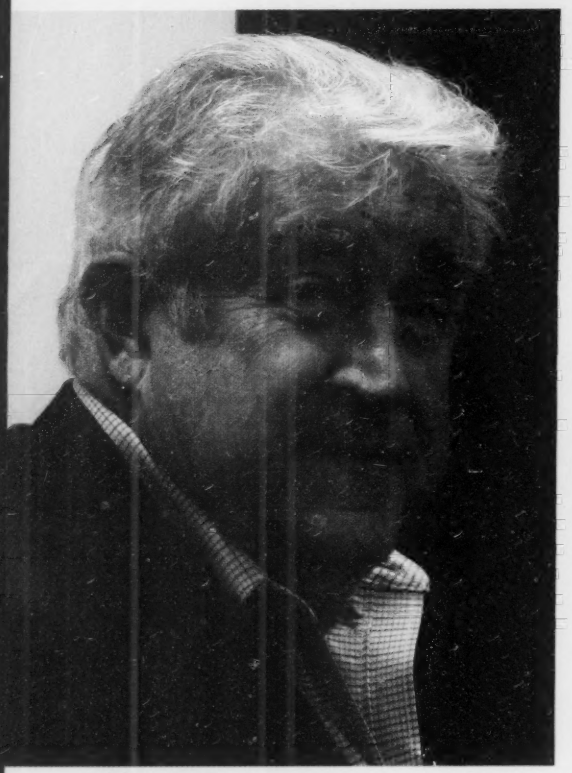
### Thank you to our "Best Practices in Storage"® Judges for SNW Fall 2007:

- Wendy Betts, Hewitt Associates
- Richie Tallmadge, CNBC
- Brian Fonseca, Computerworld
- Dale Frantz, Auto Warehousing Company (AWC)
- Julia King, Computerworld
- Ellen Lary, Lary.com
- Richie Lary, Lary.com
- Lucas Mearian, Computerworld
- Ian Lamont, IDG
- Ben Woo, IDC

### *Program Judges' Criteria*

Judges evaluated and ranked the finalists in each category according to their substantiated storage networking solution attributes and achievements against a set of criteria such as:

- Financial return and measurable payback (returns on investment, assets, resources) through created/protected revenue opportunities or cost savings.
- Strategic importance to the business.
- Substantive customer impact (service, retention, acquisition).
- Positive impact on other business/organization units.
- Addresses system and department interoperability issues and heterogeneous platform integration challenges.
- Provides a strategic advantage to the business/organization while anticipating and accommodating the deployment of future storage networking solution initiatives.
- Supports the efficient and reliable data, information and application sharing/access between personnel, departments, divisions, etc.
- Addresses challenges of data, information and application security, recovery, business continuity, etc.



> **If the system does not fund thinking about big problems, you think about small problems.**

*Continued from page 22*

[The IPTO] directors changed the world, but I claim to be the godfather, not the father. And as godfather, I took their message to Congress.

**What else did you do as godfather?** I signed the first two or three ARPA orders in 1966 and 1967 as director. I said, "Do that — build a network, however small and crappy it is." Lick was gone by then, but I had recruited Bob Taylor as the follow-on.

One day, Taylor dropped into my office, and he got $1 million in 20 minutes. [When Taylor recounts this story] he acts like I was sitting in my chair handing out million-dollar checks, but not so. I was sure that networking computers would change computing. I do not claim to have foreseen what happened, but I knew Licklider was on to something.

**In those days, did you casually hand out big sums like that very often?** Whenever it was needed. My secret was that I always had money because there was a long list of things we were doing that we didn't have to do. I was ruthless about that.

**What else did IPTO do in those early times?** We created the whole artificial intelligence community and funded it. And we created the computer science world. When we started [IPTO], there were no computer science departments or computer science professionals in the world. None.

**Do you agree with the people who say that DARPA has pulled back from long-range, high-risk projects?** There certainly has been a change, and it's not for the better. But it may be inevitable.

I'm not sure one could start the old ARPA nowadays. It would be illegal, perhaps. We now live under tight controls by many people who don't understand much about substance.

What was unique about IPTO was that it was very broad technically and philosophically, and nobody told you how to structure it. We structured it. It's very hard to do that today.

**But why? Why couldn't a Licklider come in today and do big things?** Because the people that you have to persuade are too busy, don't know enough about the subject and are highly risk-averse.

When President Eisenhower said, "You, Department X, will do Y," they'd salute and say, "Yes, sir." Now they say, "We'll get back to you." I blame Congress for a good part of it. And agency heads are all wishy-washy. What's missing is leadership that understands what it is doing.

***The Washington Post* recently ran a Page One story saying that the FBI had given emergency responders $25 million in "computer kits" for exchanging information on suspected explosives, including weapons of mass destruction. But, the *Post* said, many of the kits didn't work and some were just abandoned. What do you make of that kind of report?** We are becoming incapable of handling a technology challenge of any major magnitude. We are losing the ability to do big, complicated things. In your example, nobody thought that someone had to organize a maintenance space for repairs, spare parts and so on. They only thought about buying the radios.

**Is it partly a failure of technology?** Absolutely not. We have technology on the shelf we don't know what to do with, and we are buying more every day, to the tune of billions of dollars a year. What's missing is leadership that understands what it is doing. The whole thing is just off the rails.

**What's going on at the National Science Foundation?** My friends complain that they have to submit 10 proposals to get one funded. Cuckoo. And it's tremendously demoralizing and very inefficient. The process is too risk-averse. But doing really good research is a high-risk proposition. If the system does not fund thinking about big problems, you think about small problems.

**Could there be another unhappy surprise like Sputnik?** Yes, I expect it. In the biological world, it may be an accident: Someone is doing virus research and comes up with something that spreads easily and kills a lot of people. There is terrorism. It is absolutely thinkable that these guys will steal a nuclear weapon, have some technical help and blow it off in New York Harbor.

— *Interview by* **Gary Anthes**

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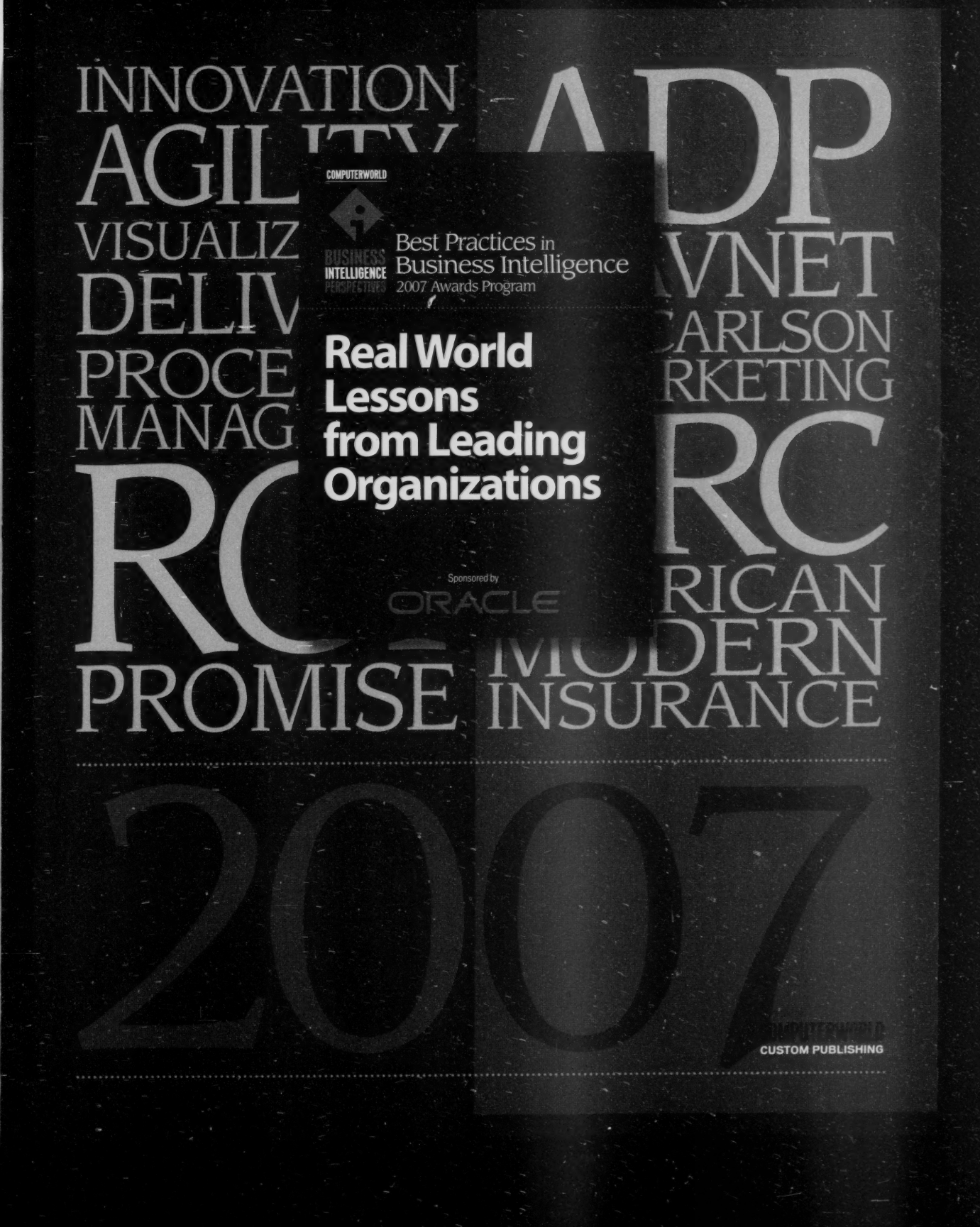


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BUSINESS INTELLIGENCE PERSPECTIVES

Best Practices in Business Intelligence
2007 Awards Program

# Real World Lessons from Leading Organizations

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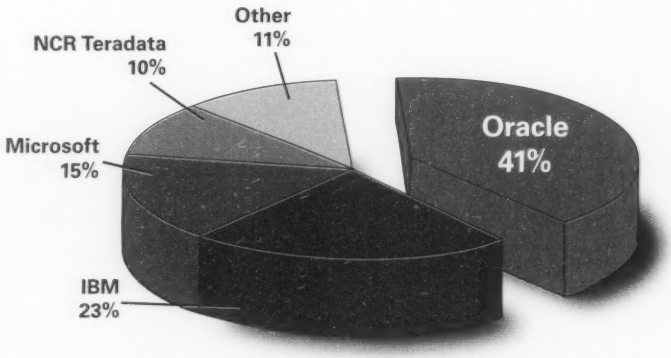
# #1

# Data Warehousing

*Yet again...*




**Worldwide Data Warehouse Management
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Source: IDC, Worldwide Data Warehouse Platform Tools 2006 Vendor Shares, IDC #207851, July 2007.

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# Opening remarks from Oracle

IN 2006, HYPERION SPONSORED Computerworld's "Best Practices In Business Intelligence" Awards Program. Today in 2007, as part of Oracle Corporation, we are just as proud to sponsor this award program.

Over the last several years, the paradigm for BI delivery has rapidly developed and transformed into the idea of "pervasive BI." This encompasses the ability to deliver information to people in the ways they can use it, not just delivering a set of reports for analysis, monitoring and planning. For the first time in many years, BI is at the top of CIOs' agendas. They understand that the technological infrastructure is now available to accelerate the execution of business strategies for global competition and regulatory compliance.

This year's honorees have been selected to be leaders in the following categories:

1. Creating an Agile BI Infrastructure
2. Driving Process Management with BI
3. Expediting Information Delivery, Retrieval, Reporting and Analysis
4. Innovation and Promise in BI

Oracle's acquisition and integration of key BI leaders such as Hyperion and Siebel have resulted in a convergence of new BI and performance management products that are best-in-class with regard to scope and functionality. We now offer every element of a complete BI solution, including best-of-breed data warehousing, data integration, BI platform technology, operational BI applications, and financial performance management applications. We are the only vendor positioned in Gartner's Leaders quadrant for BI platforms, data warehousing, and performance management suites. The case studies written by this year's honorees will provide an understanding of how the implementation of BI tools, technologies and related processes are key components for developing a complete end-to-end enterprise performance management system for your company. We congratulate and thank all thought leaders in this market space for "taking BI to the next level."

John Kopcke
*Senior Vice President,*
*BI and Performance Management,*
*Oracle Corporation*

## Meet our 2007 Honorees & Finalists

**Driving Process Management with Business Intelligence**

PAGES 4-5

HONOREE
**Airlines Reporting Corporation**

FINALISTS
Accenture (IL)
Cox Enterprises, Inc. (GA)
Geisinger Health System (PA)
Maine Medical Center (ME)

**Creating an Agile BI Infrastructure**

PAGES 6-7

HONOREE
**American Modern Insurance**

FINALISTS
Allegheny County (PA) Department of Human Services
Blue Cross Blue Shield of Tennessee (TN)
Broward County (FL) Public Schools
College of Humanities, Arts, and Social Sciences (CA)

**Expediting Information Delivery, Retrieval, Reporting and Analysis**

PAGES 10-11

HONOREES (TIE)
**ADP Dealer Services and Avnet, Inc.**

FINALISTS
Dept. of Defense, Health Affairs (VA)
Ford Motor Company, (MI)
Pennsylvania Bureau of Child Support Enforcement (PA)

**Innovation and Promise in Business Intelligence**

PAGES 12-13

HONOREE
**Carlson Maketing Worldwide**

FINALISTS
Airlines Reporting Corporation (VA)
Fiserv ISS (CO)
Nationwide Insurance (OH)
Sigma-Aldrich Corp. (MO)

Best Practices in Business Intelligence
2007 Awards Program

HONOREE

A·R·C

Arlington, Virginia

www.arccorp.com

Financial settlement solutions, data and analytical services for the travel industry

"Airlines Reporting Corporation is excited to be recognized for our innovative approach to meeting our customers' business needs. We proudly serve airline carriers, travel agencies, airports, convention and tourist bureaus, industry analysts, and other travel industry suppliers."

*—Shiela Cuyjet, Director, Product Operations, Airlines Reporting Corporation*

## THE BIG PAYOFF

- $12.5M reduction in core operating costs
- Reduced storage costs for travel professionals
- Report results in just 20 minutes—not 48 hours
- Fraudulent activity detected in 24 hours—not weeks or months

FINALISTS

Accenture (IL)
Cox Enterprises, Inc. (GA)
Geisinger Health System (PA)
Maine Medical Center (ME)

CATEGORY
**Driving Process Management with Business Intelligence**

# Airlines Reporting Corporation

# Putting customers in the driver's seat

## Detecting inappropriate activities and patterns saves big money

AIRLINES REPORTING CORPORATION (ARC) is an airline-owned company that provides financial settlement solutions and data and analytical services to the travel industry, including carriers, travel agencies, airports and industry analysts.

ARC has established data warehouse processes, procedures, and BI tools to centralize and simplify industry reporting in virtually every internal decision-making and workflow function. This has resulted in significant tangible and intangible cost reductions throughout the company. Several of these cost savings examples are detailed below.

In 1997, ARC shipped more than 1.2 billon paper ticket coupons. In 2006, with 96% of the business fully electronic, ARC shipped fewer than 200 million coupons resulting in an estimated $12.5 million reduction in core operating costs. This was accomplished through the implementation of our first BI application, ARC Document Retrieval Service. The ARC Document Retrieval Service is a secure, web-based solution for storage and retrieval of 39 months of historical ticketing data. The service is accessed by nearly 30,000 travel industry subscribers across the globe. In launching the ARC Document Retrieval Service, ARC was able to offer a significant reduction in storage costs to many travel professionals across the U.S. since they were no longer required to store paper coupons for dispute resolution and historical review.

ARC's bond and risk management groups can quickly assess default risks, with report results taking 20

This demanding category calls for defining metrics and selecting tools for improved business performance management. As a compliment to those capabilities, it also includes scoreboarding corporate performance management via CRM, ERP, and executive dashboards. Expertise must be demonstrated in identifying pain points in the workflow process, and responding with BI-based solutions. Successful solutions will further employ BI to streamline compliance and regulatory reporting, and exploit the investment for better process management.

**"ARC's advanced knowledge in data mining technology and BI solutions has reduced travel agency fraud to less than one basis point (0.01% of $1.00 for every $10,000) in sales, or a reduction of about 78.2% over a five-year period."**

**Shiela Cuyjet,** Director, Product Operations, Airlines Reporting Corporation

minutes instead of the 48 hours required before our BI/DW solution implementation. Internal auditors can summarize the activity of any airline or travel agent in just five minutes instead of using the previous paper processes taking up to 24 hours. In addition, fraudulent travel industry activity can be identified in 24 hours, instead of weeks or months. ARC offers timely insights to airlines supporting their lost prevention efforts. With the BI solutions ARC provides to the Airlines, they are able to recognize unusual activities and detect patterns that help identify inappropriate ticketing practices that could potentially cost millions of dollars in fraud or lost revenue. Because of ARC's advanced knowledge in data mining technology and BI solutions, travel agency fraud has been reduced to less than one basis point (0.01% or $1 for every $10,000) in sales, or a reduction of about 78.2 percent over a five year period.

In addition to internal impacts, ARC mines the data on behalf of our external customers by generating reports using the analytic capabilities of the ARC COMPASS data warehouse. The results of these analytics help our travel industry customers create targeted marketing plans, identify new revenue opportunities, assess incentive programs in place among travel industry partners, and optimize travel sales and marketing promotions. As a BI solutions provider, ARC also offers insight to our travel customers for such needs as route and network planning, sales trends, understanding their customers' behavior, creating demand forecasts, building statistical profiles, conducting point of sale analysis, and measuring targeted marketing campaigns. •

Best Practices in Business Intelligence
2007 Awards Program

HONOREE

AMERICAN MODERN INSURANCE GROUP
BEYOND STANDARD

Amelia, Ohio
www.amig.com
Insurance products and services

"American Modern is thrilled to be a Computerworld Honors Program award recipient. This recognition is fitting to say "Job well done" to the team that believed so strongly in this project. Further, it represents expert confirmation that American Modern's use of technology is innovative and strategic."
*—Sandy Wagner, Vice President, American Modern Insurance Group*

## THE BIG PAYOFF

- 20% annual increase in directly attributed new business
- 25% improvement in current product review and management cycle time
- 21% improvement in products filing cycle time
- 2% reduction in total loss ratio directly attributed to modernLINK initiative

FINALISTS

Allegheny County Department of Human Services (PA)
Blue Cross Blue Shield of Tennessee (TN)
Broward County (FL) Public Schools
College of Humanities, Arts, and Social Sciences (CA)

CATEGORY
**Creating an Agile Business Intelligence Infrastructure**

# American Modern Insurance
# Ready for new opportunities and initiatives

## Ambitious 3-year project bolsters Data Management team

IN 2000, AMERICAN MODERN embarked upon a three-pronged, long-range initiative, coined "modernLINK," to 1) web-enable its insurance transaction processing 2) replace its aging legacy processing systems, and 3) develop a Knowledge Management architecture.

As part of the Enterprise Architecture Transformation initiative, American Modern created a roadmap to develop an Enterprise Data Model, an Operational Data Store, an Enterprise Data Warehouse, a Metadata Management Process, a Themed Analytic Data Mart Layer, and an Enterprise Reporting Portal. This Knowledge Management architecture would provide the company with the ability to monitor, measure and analyze existing business, refine and improve current practices, and identify new opportunities.

Now in its seventh year, the Knowledge Management architecture has delivered significant results. Today, American Modern's business units can make informed business decisions, respond quickly to new business initiatives and create new opportunities because of the tools and information provided. They are moving from data collectors to data consumers. Business users have information delivered to their desktops in the form of reports, analytic cubes,

The honoree in this category have not only shown expertise in rolling out a design and implementation plan, but have demonstrated their ability to combine BI and enterprise search technology. In addition, they have successfully integrated metadata, structured and unstructured data sources, while blending workflow and collaboration tools in an environment that also features active data warehousing.

and maps. This new ability to ask "Why," instead of "What," will enable American Modern to transform itself into a learning organization.

Because American Modern provides products and services for various business segments, the organization quickly determined that it could not design and build every variation all at once. Instead, implementation was planned over a multi-year period, and was based on a business case with clearly articulated benefits. Each phase addressed a product line and provided an end-to-end deliverable—Enterprise Data Model, Enterprise Data Warehouse, Themed Analytic Mart, Metadata Management Process, and Reporting.

By using an insurance data model, American Modern realized a 70% fit, and was able to jump-start the data model portion of the project. The first phase of the Enterprise Data Warehouse was introduced to the business in September 2003, while the final phase was scheduled for completion in early 2007.

An Analytic Data Mart layer was created, based on business themes, to provide a consistent presentation of the data, and reduce data store redundancy. Each phase extended existing marts and included query, report and analytic capabilities delivered in a common, web-based reporting portal. These tools enable business users to create/run reports from multiple and disparate data sources independent of Information Technology resources. The analytic, multi-dimensional cubes are created to allow the business users to drill down on specific business segments.

Sandy Wagner, Vice President, American Modern Insurance Group

American Modern continues to build upon the foundation created by the Enterprise Data Warehouse. The second piece of the long-range plan is in progress—replacement of the legacy processing systems—and is dependent upon the implementation of the Operational Data Store. This portion of work, and its integration with the data warehouse, was completed ahead of schedule due to the standardization of the design, definitions, and processes created during the Enterprise Data Warehouse implementation.

With this foundation in place, American Modern is in a position to quickly respond to new business opportunities and initiatives.

John Hayden, President and CEO, American Modern elaborates:

"Data management is the heart and soul of our business, and the work our Data Management team is doing to more effectively capture, store, and scrub our data is certain to give us a competitive edge in our unique product categories in the years ahead." •

## "Data management is the heart and soul of our business"

**John Hayden,** President and CEO, American Modern Insurance Group

Oracle Business Intelligence

# Most Comprehensive Business Intelligence

'Out of the box' comparison of Oracle Business Intelligence with Business Objects XI and Cognos 8.

| | Business Objects | Cognos | Oracle |
|---|---|---|---|
| Interactive Dashboards | ✓ | ✓ | ✓ |
| Query, Reporting and Analysis | ✓ | ✓ | ✓ |
| Leading Analytic Applications | | | ✓ |
| Guided and Embedded Analytics | | | ✓ |
| Intelligent Workflow | | | ✓ |
| Real-time Predictive Decisioning | | | ✓ |
| Business Activity Monitoring | | | ✓ |
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Best Practices in Business Intelligence
2007 Awards Program

HONOREE

ADP

Portland, Oregon
www.adp.com
Integrated computing solutions

"The Computerworld Business Intelligence Award program has high standards with a careful review process by many of our industry's top technology leaders. Our BI system has given us views into our business and enabled ADP to make important product decisions that continue to drive customer value. The award is a great validation that our hard work is paying off."

*—Jim Foote, Vice President Field Technology and Technical Services, ADP Dealer Services*

## THE BIG PAYOFF

Rapid $307,200 ROI
In-depth, next-day information
Reduced support costs
Centralized location for BI, data analysis, and query and reporting

FINALISTS

Dept. of Defense, Health Affairs (VA)
Ford Motor Company, (MI)
Pennsylvania Bureau of Child Support Enforcement (PA)

CATEGORY

**Expediting Information Delivery, Retrieval, Reporting and Analysis (tie with Avnet)**

## ADP Dealer Services

# Sophisticated system makes company more cost-effective

### Technology mix provides business solutions to far-flung network

THE INTEGRATION of BI solutions at Automatic Data Processing Dealer Services (ADP Dealer Services) is a direct result of successfully combining various available technologies for use in ADP applications. ADP Dealer Services provides integrated Dealer Management Systems (DMS) and business solutions to 25,500 auto, heavy truck, motorcycle, marine and recreational vehicle retailers and their manufacturers throughout North America, Canada and Europe.

A database management system is used for local staging of business and operational data. Statistical and configuration data is extracted through proprietary routines and procedures from customer systems. Data reflecting product installation, support, sales, contracting, billing, and customer satisfaction is extracted from various internal databases. This data is combined in a warehouse that supports the generation of analysis cubes for identification of sales opportunities, software release compliances, customer support management, and general data resolution.

One particular method of data extraction is the Smart System Monitor (SSM), a proprietary technology that monitors customer systems and reports on their status. SSM proactively

Submissions here should focus on such capabilities as moving from ad hoc query/OLAP to scorecards, dashboards, enhanced visualization, and predictive modeling. Equally important is enabling users to mine and access data on their own while maintaining standards, quality and consistency. Moreover, it is necessary to show the ability to use predictive analysis to exploit opportunities in operational processes, customer demographics and market conditions. Lastly, this category features the simplification of user interfaces to streamline BI use throughout the enterprise.

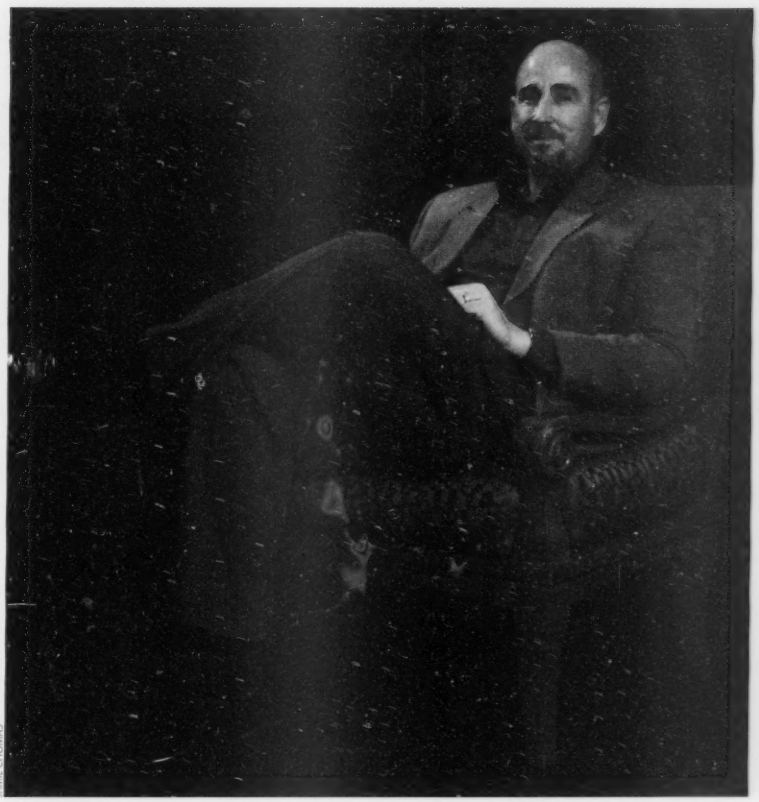
notifies ADP of errors or conditions on the DMS that require attention. There are over 35 specific error activators currently deployed by SSM. SSM facilitates ADP's ability to eliminate recurring technology problems by delivering automated fixes for specific errors and problems.

A product that integrates data across multiple and high volumes of data sources and target applications is used to extract, transform and load the data into a database which serves as our warehouse.

Analysis services use cubes built from the warehouse data. Offerings from a BI products and services company access the cubes and present the data to users. That same company's BI tools were used to develop internal dashboard applications collectively referred to as Online Reporting Business Intelligence Technology (ORBIT). ORBIT is an easy to use yet powerful reporting tool. The dashboard's multi-dimensional display allows ADP to look for trends and patterns in support needs and to proactively solve Client problems before they occur.

ORBIT has become an important tool for ADP Dealer Services. ORBIT:

- Provides up-to-the-moment BI
- Exposes patterns and trends
- Allows ADP to know of issues/concerns before clients are impacted
- Informs ADP of clients in need of updates
- Informs ADP of clients who meet the field test criteria
- Provides ADP real time information in a user friendly format
- Provides data for targeted training needs of clients and ADP Support Associates



JAMIE CHOMAS

Jim Foote, Vice President Field Technology and Technical Services, ADP Dealer Services

Our ORBIT application provides in-depth, next-day information to our management. This enables managers to make more informed decisions. Internal departments benefit by having access to information they need to make business decisions on product trends.

A multi-department team was led by IT to develop these technologies. Important stakeholders included both the ADP Dealer Services Support Organization and Field Implementation and Research and Development. External software expertise was used throughout the development and management of the ADP Dealer Services Business Intelligence project.

Through these technologies, roadmaps were created, project deliverables were identified and weekly update meetings were facilitated. This technology also assists in creating roadmaps for upcoming and ongoing projects. •

Best Practices in Business Intelligence
2007 Awards Program

HONOREE

AVNET

Phoenix, Arizona
www.avnet.com
Global technology distributor

"This prestigious award recognizes years of hard work, dedication and investments made by Avnet's business and IT teams to implement a best-in-class BI system. We appreciate everyone's contributions toward our common goal of transforming data into information, which is used by Avnet's decision makers to enrich the customer experience."

—Bob Pischke,
Vice President, Avnet, Inc.

## THE BIG PAYOFF

- $5 million ROI
- Transactional data drives real-time decisions
- Raw data transformed into valuable information
- Productivity up, costs down

FINALISTS

Dept. of Defense, Health Affairs (VA)
Ford Motor Company, (MI)
Pennsylvania Bureau of Child Support Enforcement (PA)

CATEGORY
Expediting Information Delivery, Retrieval, Reporting and Analysis (tie with ADP)

# Avnet, Inc.

# Web-based portal offers easy access to critical data

## Enhanced communications drive increased revenues

AS A $15.68 BILLION global technology distributor, Avnet is strongly focused on sales and product data. If used correctly, this data can transform the business by increasing customer responsiveness through predictive analysis, providing alignment between inventory levels and customer forecasts, and helping customers anticipate changes in component availability that might impact product manufacturing cycles.

For several years, the BI system within Avnet's semiconductor business met its basic data reporting needs, but didn't satisfy the company's unquenchable thirst for knowledge. The existing system was static, generating one-size-fits-all batch reports that were not easily customizable and only included a limited set of data points.

Reports were created by the IT team, and custom reports took weeks to develop because of system inflexibility. Additionally, the architecture of the system made finding specific reports difficult without personalized folders. All of these factors hindered the completeness of the data.

By working closely with business leaders and operational staff, Avnet's IT team developed a new BI system that would be incorporated into a Web-based portal. The new system was designed to make reports easily accessible via customized folders to all appropriate staff (from front line sales staff, to

Submissions here should focus on such capabilities as moving from ad hoc query/OLAP to scorecards, dashboards, enhanced visualization, and predictive modeling. Equally important is enabling users to mine and access data on their own while maintaining standards, quality and consistency. Moreover, it is necessary to show the ability to use predictive analysis to exploit opportunities in operational processes, customer demographics and market conditions. Lastly, this category features the simplification of user interfaces to streamline BI use throughout the enterprise.

The Avnet BI team (left to right): Jared Barton, Data and Systems Integrator; Jacqi Musselman, Data Warehouse Architect; Leah Schrader, Sr. Solutions Configurer; Manish Lakhotia, Enterprise Solutions Integrator; Wendy Krause, Manager, IT; Vince Desio, Principal BI Architect; Talaei, Mojgan, Business Warehouse Developer; Karen Brooks, Sr. Systems Analyst/Developer; Troy Quiroga, Manager, IT

materials managers and executive management). The intent was to transform raw product and sales data into the valuable information that would be placed in the hands of decision makers, ultimately increasing revenue and profit.

To effectively design, develop and deploy the new BI system, Avnet's senior IT architects worked with business users to define requirements, create the user interface, and ensure the quality and consistency of the data being incorporated into the reports. The foundation of the new system was a web-based data warehousing solution that provided personalization, security, customization, and additional data subject areas, such as data from purchasing, materials management and logistics systems. Avnet also moved its data architecture to a STAR schema, which allows users to combine data from multiple systems to drive information.

Now, reports that previously took weeks to create appear in minutes. The reports can be generated in real-time, on demand, and are dynamic and easily customizable by business staff instead of IT. The information can be viewed through the web portal as scorecards, and automatically populates customer review materials such as PowerPoint templates. Based on these capabilities, this system is now deemed mission critical.

The new BI system was fully adopted throughout the business, with 1,900 users generating 125,000 reports per month. The direct return on the IT investment is approximately $5 million, achieved mainly through cost reductions and productivity increases. Not surprisingly, revenue and gross profit growth are closely linked to the success of the new system.

Employee and customer performance is now managed based on real-time information. Sales staff can engage their customers at a deeper level based on historical sales activities and predictive analysis of inventory requirements. They can also make recommendations for associated product purchases by anticipating their customers' complete design solution needs. •

Best Practices in Business Intelligence
2007 Awards Program

HONOREE

carlson marketing

Plymouth, Minnesota
www.carlsonmarketing.com
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"Our success is measured by helping clients drive their top and bottom lines. This award validates our belief that providing clients with the best data enables them to engage their customers and channel partners in meaningful experiences. Innovative use of BI can create connections that count and drive results."

—Ben Leonard, IT Director, Carlson Marketing Worldwide

## THE BIG PAYOFF

Reduced TCO lead to 75% reduction in work.

Report requests increased 300%. The number of unique users increased by 700%.

Consolidated data has enhanced cross-functional and integrated reporting.

1,000% gain in report execution time resulted in improved productivity and efficiency.

FINALISTS

Airlines Reporting Corporation (VA)
Fiserv ISS (CO)
Nationwide Insurance (OH)
Sigma-Aldrich Corp. (MO)

CATEGORY
Innovation and Promise in Business Intelligence

# Carlson Marketing Worldwide

# Empowering clients is the key to success

BI environment with self-service analytical capabilities streamlines company operations.

CARLSON MARKETING WORLDWIDE (CMW) provides unique marketing services to its clients that helps them develop and sustain their relationships with customers. As part of their Sales and Marketing services, CMW developed a "Recognition & Rewards" (R&R) program for its clients with a goal of empowering them to better engage with their employees and channel partners.

In order to achieve this goal, CMW invested in a unique web-based, on-demand BI solution and improved its infrastructure. The desired outcome of this solution was enhancing customer satisfaction by helping end users define their own success parameters, track their incentive programs and measure various key performance indicators (productivity, operations cost, success rate, etc).

The primary challenge with the R&R solution was segmenting and awarding the users across varied organizational hierarchies in its customer base. CMW also wanted to integrate the varied analytical needs of customers into a common semantic layer and provide a secure mechanism to help them track their R&R initiatives.

CMW's on-demand BI solution, entitled "My Work Link" or "MWL," is powered by a multi-tenant architecture. The underlying infrastructure is shared by all customers and provides a secure and integrated view

The honoree here has led the way through successful "pioneering" of leading/bleeding-edge BI technology, a task that calls for the ability to overcome early adoption obstacles and to resolve problems either inhouse or via unique vendor/integrator/other user partnerships. This category also focuses on the project's innovative approach to BI and successful implementation.

of their R&R data. MWL has a robust security mechanism and provides different views to employees within each organization based on the roles defined by the owner of the incentive program. It also uses a unique "parent-child" hierarchy roll-up to segment and address different organizational hierarchies that exist in the customer base.

MWL further provides executive management with sophisticated self-service capabilities and standardized reports that provide key insights into the health of the organization's R&R programs.

The open web-services API of the solution also makes it possible to integrate the reporting environment with the shared infrastructure while simultaneously meeting the core requirement of customizing the environment to satisfy client needs.

Data security was the main concern in a multi-tenant, hosted BI environment. In order to address this concern, CMW had to not only build a secure analytical environment for users across organizations, but convince those users to adopt the service. The MWL solution is now being employed by 17 customers across a wide range of industries, including banking, telecommunications, pharmaceuticals, and restaurants.

Another concern was quickly acquiring competency in various tools. CMW overcame this obstacle by partnering with an IT and business processing outsourcing company. This company had deep experience working with leading data integration and BI technologies, and its skilled consultants helped CMW reduce the solution's time-to-market.

The Carlson BI Team (left to right): Jennifer Hansegard (sitting); Abhijith Vishwanata (kneeling); Ben Leonard (lying in front); Narashiman Rengarajan (standing); Vivek Chaudhary (kneeling); Kristy Ross (lying); Julie Laxen (standing); Dan William (kneeling); Luke Smith (sitting)

This was specifically accomplished through parallel development of Data Integration and Reporting modules. CMW eliminated the dependency between these two by using "data obfuscation" techniques. Then, the outsourcer's in-house solution accelerator was used to generate test data for reporting. This helped reduce the project life cycle time by 30%.

CMW decided to provide MWL BI solution as a service to its customers, so instead of running the R&R program in a "build-operate-transfer" mode, CMW hosted the infrastructure and provided a BI environment with self-service analytical capabilities to all customers. •

**CMW had to not only build a secure analytical environment for users across organizations, but convince those users to adopt the service.**

# #1
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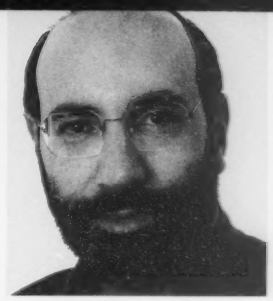
■ OPINION

Michael Gartenberg

# Linux Still Doesn't Make It on Desktop



BACK IN the mid-'90s, my research focused on desktop operating systems. There was a plethora of options for IT organizations, with Mac OS, Windows in the guise of NT and 95, and OS/2 Warp all vying for the attention of IT managers. Even Unix workstation vendors had thoughts of moving beyond scientific and engineering applications to mainstream knowledge worker desktops.

But by the late '90s, it felt as if I was doing the color commentary for a horse race whose leader was out in front by 10 furlongs. Still, while it was clear to many that Microsoft was going to dominate the desktop, that didn't stop some in IT from looking for alternatives.

Then a dark horse emerged. Many people now believe that Linux represents a viable alternative. Today, with mainstream hardware vendors like Dell offering Linux installations and some folks thinking a major shift is about to happen, it's time to take another look at Linux on the desktop.

Unfortunately, despite major strides in recent years — notably the Ubuntu release — Linux still isn't viable for most end users or organizations.

Take a look, for example, at the Dell offering. When it was first announced, I asked company officials whether it was a mainstream product with full support. No, they said. The Linux machines were meant for enthusiasts who wanted a "no Windows" option. Users would still have to pay for the operating system — about $50 less than Windows, which was hardly a major savings — and significant features would be missing because of a lack of driver support.

In short, even though Linux has come a long way in the past few years, it hasn't come far enough. The latest and greatest hardware still arrives without Linux driver support. Until a vendor is willing to take a gamble and build fully optimized Linux systems, most IT shops simply won't bother to make the costly transition.

**■ Linux has come a long way in the past few years, but it hasn't come far enough.**

And cost is the hidden factor. While much is made of Linux's being free, the truth is that software costs account for only about 10% of total cost of ownership for PCs.

Finally, there's the lack of critical application support. Most notable for businesses is the lack of support for Microsoft Office. Yes, there are office suites available for Linux, but the reality is that most organizations are dependent on Microsoft's applications. Anything with less than 100% interoperability and compatibility isn't going to make it in the business world. And does anyone believe that Microsoft will ship a Linux version of Office anytime soon? Or ever?

And it's not just business users who are affected. Sorry, consumers, but there's no version of iTunes for Linux.

So, the search for an alternative to Microsoft on the desktop continues. The fact that a mainstream hardware vendor like Dell is willing to make a Linux effort is laudable, but until such offerings enter the mainstream, we'll have a catch-22 situation in which vendors wait for users to adopt and users wait for vendors to deliver.

For now and the foreseeable future, it's going to remain a Microsoft world. Linux still isn't the answer. And of course, there is always that other Unix-based operating system that has gained popularity over the past few years. It's called Mac OS X, and it comes from Apple. ■

**Michael Gartenberg** *is vice president and research director for the personal technology and access and custom research groups at JupiterResearch in New York. Contact him at mgartenberg@optonline.net. His weblog and RSS feed are at http://weblogs.jupiterresearch.com/analysts/gartenberg.*

SNIA

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COMPUTERWORLD STORAGE NETWORKING WORLD

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- **Establishing a Virtualized Storage Environment Hands-On Lab**
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COMPUTERWORLD STORAGE NETWORKING WORLD

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- **Security**
- **Management**
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COMPUTERWORLD STORAGE NETWORKING WORLD

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At the SNIA Certification Testing Center, SNW attendees will have easy access to the information and tests needed to **become SNIA certified**. Don't miss free Certification Prep Sessions for all SNIA Exams where you'll have the chance to ask instructors about the tough questions in preparation for actual certification testing conducted on-site.

In addition, for each SNIA exam you purchase at SNW, you will receive a voucher for a second SNIA exam at SNW at half price! The SNIA Certification Testing Center will be open and accepting walk in applicants throughout the conference. Don't miss out on this unique opportunity to get SNIA Certified at a discount rate. While at SNW, you can also sit for exams with the following SNIA Certification partners: HP, EMC, and Network Appliance.

Certifications offered will include:

- **SNIA Storage Network Foundations (S10-101)**
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- **SNIA Architect – Assessment, Planning & Design (S10-3000)**
- **HP Certified Professional Program for StorageWorks Solutions (AIS, ASE, Master ASE)**
- **EMC Proven Professional Certification (all exams)**
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**www.snwusa.com/agenda.html**

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# Congratulations Award Recipients!

Computerworld's Business Intelligence Perspectives proudly announced the results of the fourth "Best Practices in Business Intelligence" Awards Program. This program honors top IT users "Best Practice" case studies selected from a field of qualified finalists.

*Exclusively Sponsored by*

ORACLE

Honoree Award Recipients in each of the following categories were recognized during the awards ceremony at Business Intelligence Perspectives in Las Vegas, Nevada on September 26th:

## Creating an Agile BI Infrastructure

**American Modern Insurance Group, Ohio**

*Finalists:* *Allegheny County Department of Human Services, Pennsylvania*
*BlueCross BlueShield of Tennessee, Tennessee*
*Broward County Public Schools, Florida*
*University of California, Riverside, College of Humanities, Arts, and Social Sciences, California*

## Driving Process Management with BI

**Airlines Reporting Corporation, Virginia**

*Finalists:* *Accenture, Illinois*
*Cox Enterprises, Inc., Georgia*
*Geisinger Health System, Pennsylvania*
*Maine Medical Center, Maine*

## Expediting Information Delivery, Retrieval, Reporting and Analysis

**ADP Dealer Services, Oregon & Avnet, Inc., Arizona**

*Finalists:* *Department of Defense, Health Affairs, Virginia*
*Ford Motor Company, Michigan*
*Pennsylvania Bureau of Child Support Enforcement, Pennsylvania*

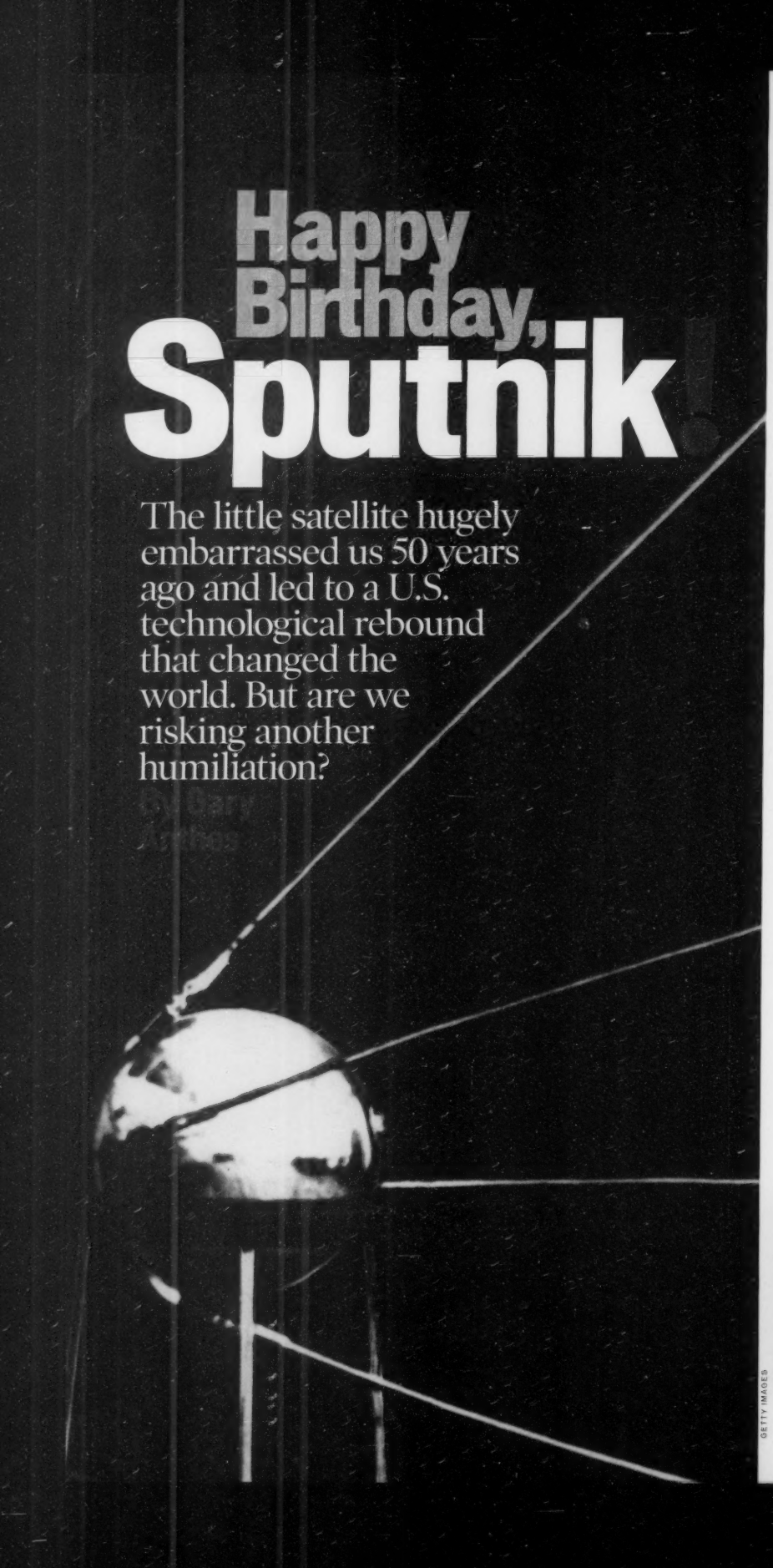
## Innovation and Promise in Business Intelligence

**Carlson Marketing Worldwide, Minnesota**

*Finalists:* *Airlines Reporting Corporation, Virginia*
*Fiserv ISS, Colorado*
*Nationwide Insurance, Ohio*
*Sigma-Aldrich Corp., Missouri*

# Happy Birthday, Sputnik

## The little satellite hugely embarrassed us 50 years ago and led to a U.S. technological rebound that changed the world. But are we risking another humiliation?



GETTY IMAGES

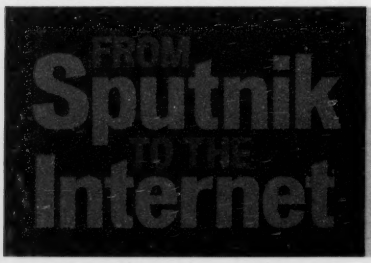
THE MOST influential piece of hardware from the early days of computing may not have been the IBM 360 mainframe or the DEC PDP-1 minicomputer; or the earlier Binac, ENIAC or Univac computers; or the Babbage Difference Engine from the 1800s.

More likely, it was a 183-pound aluminum sphere called Sputnik, Russian for "traveling companion." Beeps from the first man-made object to orbit the Earth — featured on news broadcasts worldwide — stunned and unnerved Americans 50 years ago this week, and the country's reaction to the "October surprise" changed computing forever.

Although Sputnik fell from orbit just three months after launch, it marked the beginning of the Space Age, and in the U.S., it produced angst bordering on hysteria. Soon, there was talk of a U.S.-Russian "missile gap." Then, on Dec. 6, 1957, a Vanguard rocket that was to have carried aloft the first U.S. satellite exploded on the launchpad. The press dubbed the Vanguard "Kaputnik" and demanded that something be done.

The most immediate "something" was the Advanced Research Projects Agency (ARPA), a freewheeling Pentagon office created by President Dwight D. Eisenhower on Feb. 7, 1958. Its mission was to "prevent technological surprises" and, in those first days, it was heavily weighted with space programs.

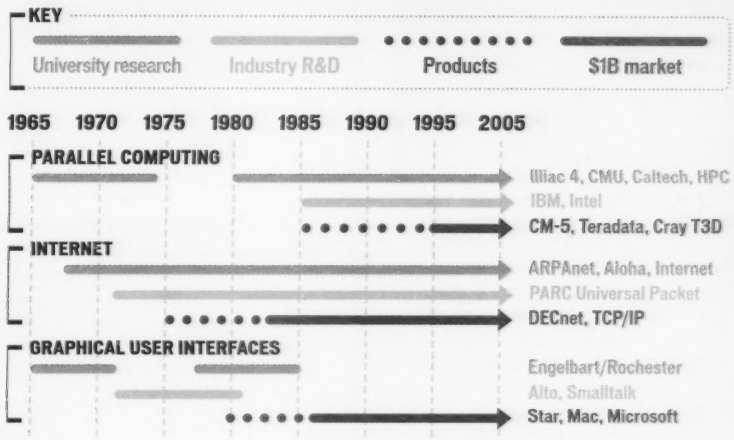
Speaking of surprises, it might surprise some to learn that on the list of people who have most influenced the course of IT — people with names like von Neumann, Watson, Hopper, Amdahl, Cerf and Gates — appears the name J.C.R. Licklider, the first director of IT research at ARPA.



# Cross-Fertilizing Innovation

**From its inception in the late 1950s, the Advanced Research Projects Agency, later renamed the Defense Advanced Research Projects Agency, catalyzed the invention of an astonishing array of technologies. This chart shows how the U.S. government – primarily DARPA – has worked with universities and private industry over the years to develop these key technologies.**

COMPUTERWORLD.COM
**MORE ONLINE**
For a greatly expanded version of this chart, please see **computerworld.com/07/innovation**




SOURCE: COMPUTER SCIENCE AND TELECOMMUNICATIONS BOARD OF THE NATIONAL RESEARCH COUNCIL, NATIONAL ACADEMY OF SCIENCES, 2003

J.C.R. LICKLIDER

Armed with a big budget, carte blanche from his bosses and an unerring ability to attract bright people, Licklider catalyzed the invention of an astonishing array of technologies, from time sharing and computer graphics to microprocessors and the Internet. Indeed, it would be hard to name a major branch of IT today that Licklider did not significantly shape through ARPA funding — all ultimately the result of the little Soviet satellite.

But now, the special culture that enabled Licklider and his successors to work their magic has largely disappeared from government, many say, setting up the U.S. once again for a technological drubbing. Could there be another Sputnik? "Oh, yes," says Leonard Kleinrock, an Internet pioneer and contemporary of Licklider. "But it's not going to be a surprise this time. We all see it coming."

## THE ARPA WAY

Licklider had studied psychology as an undergraduate, and in 1962, he brought to ARPA a passionate belief that computers could be far more user-friendly than the unconnected batch-processing behemoths of the day. Two years earlier, he had published an influential paper, "Man-Computer Symbiosis," in which he laid out his vision for computers that could interact with users in real time. It was a radical concept, one utterly rejected by most academic and industrial researchers of the day.

Driven by the idea that computers might not only converse with their users but also with one another, Licklider set out on behalf of ARPA to find the best available research talent. He found it at companies like Rand Corp., but his primary source was universities, starting first at MIT and then adding Carnegie Mellon, Stanford, UC Berkeley, the University of Utah and others.

Licklider sought out researchers like himself: bright, farsighted and impatient with bureaucratic impediments. He established a culture and modus operandi. Over the next 30 years, Licklider and his successors — Ivan Sutherland, Bob Taylor, Larry Roberts and Bob Kahn — would make the agency the most powerful engine for IT innovation in the world.

Recalls Kleinrock, "Licklider set the tone for ARPA's funding model: long-term, high-risk, high-payoff and visionary, and with program managers that let principal investigators run with research as they saw fit."

The results were astounding. What began as a simple attempt to link the computers used by a handful of Defense Department researchers ultimately led to the global Internet of today. Along the way, ARPA spawned an array of supporting technologies, including time sharing, workstations, computer graphics, graphical user interfaces, VLSI design, RISC processors and parallel computing.

There were four ingredients in this recipe for success: generous funding, brilliant people, freedom from red

**1957**
**OCT. 4, 1957**
**A Soviet intercontinental ballistic missile launches the world's first artificial satellite, the 183-pound Sputnik I.**

**1958**
**FEB. 7, 1958**
**In response to Sputnik, President Eisenhower establishes the Advanced Research Projects Agency (ARPA), reporting directly to the secretary of defense.**

**1959**

**1960**
**MARCH 1960**
**J.C.R. Licklider publishes the landmark paper "Man-Computer Symbiosis," which anticipates the development of time sharing, the Internet and other information technologies.**

**1961**
**JULY 1961**
**Leonard Kleinrock at MIT publishes the first paper on packet switching, "Information Flow in Large Communication Nets."**

**1962**
**OCTOBER 1962**
**ARPA establishes and lavishly funds the Information Processing Techniques Office and appoints Licklider as its director.**

**1963**
**1963**
**Ivan Sutherland, a graduate student at MIT, writes Sketchpad, a landmark in human-computer interaction and the first program to use a graphical user interface.**

# Betting Big

**DARPA ONCE HAD** a modus operandi that led naturally to profound advances in IT, says Ed Lazowska, a computer science professor at the University of Washington in Seattle. "Traditionally, they would make big bets on smart people and then give them a lot of time and a lot of flexibility," he says.

Lazowska illustrates the point with this story from the 1970s and early 1980s, when Bob Kahn was a DARPA program manager and then director of its Information Processing Techniques Office:

*WHAT KAHN DID was absolutely remarkable. He supported the DARPA VLSI program, which funded the Mead-Conway integrated circuit design methodology. Then he funded the SUN workstation at Stanford because Forest Baskett needed a high-resolution, bit-mapped workstation for doing VLSI design, and his grad student, Andy Bechtolsheim, had an idea for a new frame buffer.*

BOB KAHN

*Meanwhile, he funded [UC] Berkeley to do Berkeley Unix. He wanted to turn Unix into a common platform for all his researchers so they could share results more easily, and he also saw it as a Trojan horse to drive the adoption of TCP/IP. That was at a time when every company had its own networking protocol — IBM with SNA, DEC with DECnet, the Europeans with X.25 — all brain-dead protocols.*

*One thing Kahn required in Berkeley Unix was that it have a great implementation of TCP/IP. So he went to Baskett and Bechtolsheim and said, "By the way, boys, you need to run Berkeley Unix on this thing."*

*Meanwhile, Jim Clark was a faculty member at Stanford, and he looked at what Baskett was doing with the VLSI program and realized he could take the entire rack of chips that were Baskett's graphics processor and reduce them to a single board. That's where Silicon Graphics came from.*

*All this stuff happened because one brilliant guy, Bob Kahn, cherry-picked a bunch of phenomenal researchers and headed them off in complementary directions and cross-fertilized their work. It's just utterly remarkable.*

tape, and the occasional ascent to the bully pulpit by ARPA managers.

Moreover, the individual technologies cross-fertilized and combined over time in ways probably not foreseen even by ARPA managers at first. What would become the Sun Microsystems workstation, for example, owes its origins rather directly to a half-dozen major technologies developed at multiple universities and companies, all funded by ARPA.

But around 2000, Kleinrock and others say, the agency, now called the Defense Advanced Research Projects Agency began to focus more on pragmatic, military objectives. A new administration was in power in Washington. Then the events of Sept. 11, 2001, changed priorities everywhere. Observers say DARPA shifted funding from long-range to shorter-term research, from universities to commercial contractors, and from unclassified work to "black," or classified, programs. "Our researchers are now being channeled into small science, small and incremental goals, short-term focus and small funding levels," Kleinrock says.

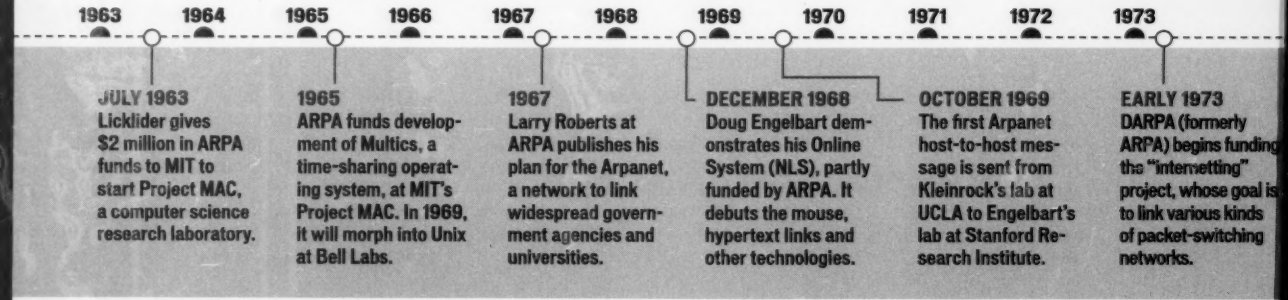
The result, critics say, is that DARPA is much less likely today to spawn the kinds of revolutionary advances that Licklider and his successors did.

DARPA officials declined to be interviewed for this story. But a spokeswoman for DARPA Director Anthony Tether said, "DARPA has not pulled back from long-term, high-risk, high-payoff research in IT or turned more to short-term projects."

## A SHOT IN THE REAR

David Farber, now a professor of computer science and public policy at Carnegie Mellon University, was a young researcher at AT&T Bell Laboratories when Sputnik went up. "We

*Continued on page 48*


1963
1964
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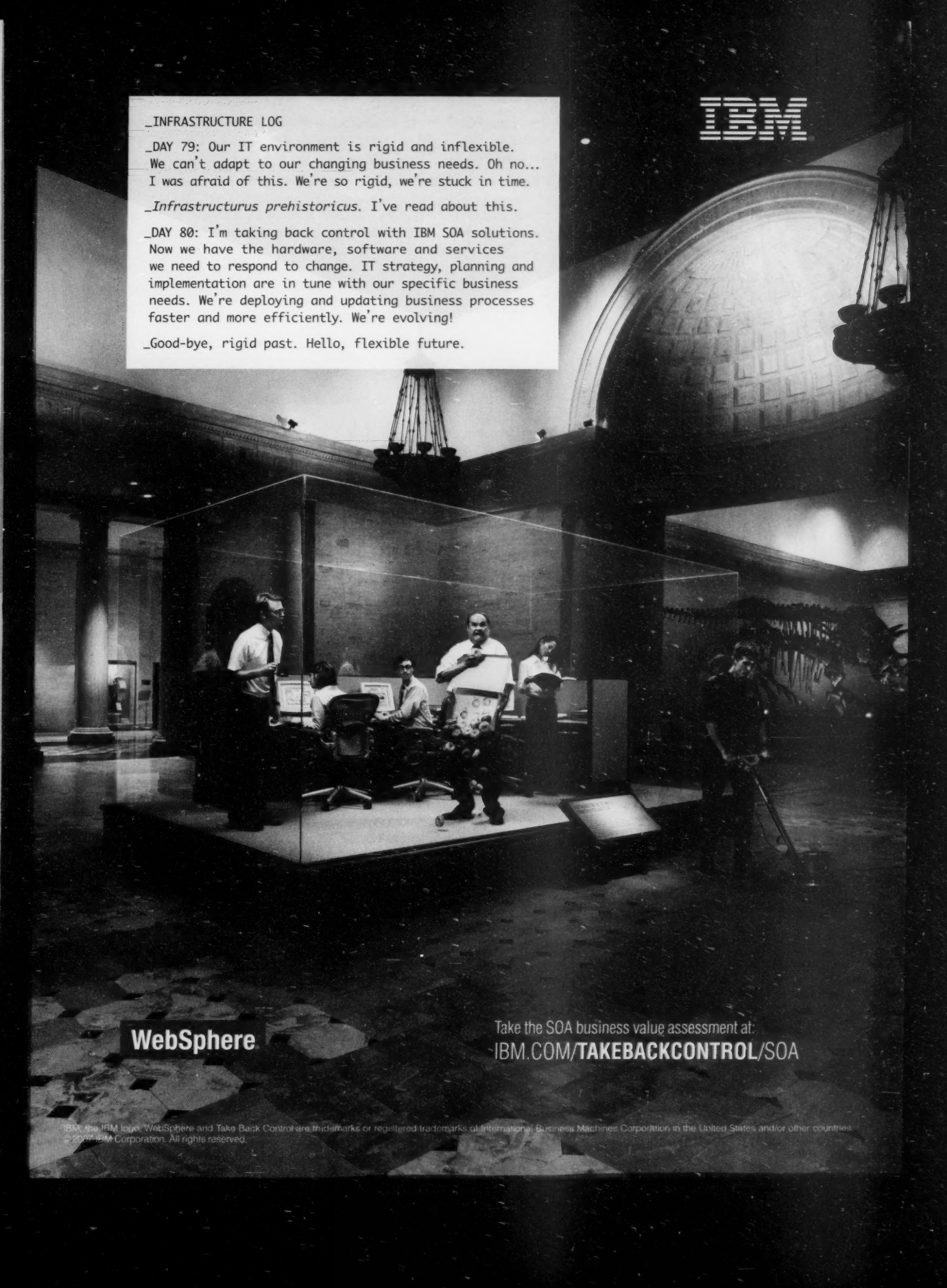
1973
JULY 1963
Licklider gives $2 million in ARPA funds to MIT to start Project MAC, a computer science research laboratory.
1965
ARPA funds development of Multics, a time-sharing operating system, at MIT's Project MAC. In 1969, it will morph into Unix at Bell Labs.
1967
Larry Roberts at ARPA publishes his plan for the Arpanet, a network to link widespread government agencies and universities.
DECEMBER 1968
Doug Engelbart demonstrates his Online System (NLS), partly funded by ARPA. It debuts the mouse, hypertext links and other technologies.
OCTOBER 1969
The first Arpanet host-to-host message is sent from Kleinrock's lab at UCLA to Engelbart's lab at Stanford Research Institute.
EARLY 1973
DARPA (formerly ARPA) begins funding the "internetting" project, whose goal is to link various kinds of packet-switching networks.


_INFRASTRUCTURE LOG
_DAY 79: Our IT environment is rigid and inflexible. We can't adapt to our changing business needs. Oh no... I was afraid of this. We're so rigid, we're stuck in time.
_*Infrastructurus prehistoricus*. I've read about this.
_DAY 80: I'm taking back control with IBM SOA solutions. Now we have the hardware, software and services we need to respond to change. IT strategy, planning and implementation are in tune with our specific business needs. We're deploying and updating business processes faster and more efficiently. We're evolving!
_Good-bye, rigid past. Hello, flexible future.
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*Continued from page 46*

people in technology had a firm belief that we were leaders in science, and suddenly we got trumped," he recalls. "That was deeply disturbing. The Russians were considerably better than we thought they were, so what other fields were they good in?"

Farber says U.S. university science programs back then were weak and out of date, but higher education soon got a "shot in the rear end" via Eisenhower's ARPA. "It provided a jolt of funding," he says. "There's nothing to move academics like funding."

DAVID FARBER

Farber says U.S. universities are no longer weak in science, but they are again suffering from a lack of funds for long-range research. "In the early years, ARPA was willing to fund things like artificial intelligence — take five years and see what happens," he says. "Nobody cared whether you delivered something in six months. It was, 'Go and put forth your best effort and see if you can budge the field.' Now, that's changed. It's more driven by, 'What did you do for us this year?' "

DARPA's budget for fiscal 2007, which ended Sept. 30, alloted $414 million for information, communications and computing technologies, plus $483 million for electronics, including things such as semiconductors. From 2001 to 2004, the percentage going to universities shrank from 39% to 21%, according the Senate Armed Services Committee.

Meanwhile, funding from the National Science Foundation for computer science and computer engineering — most of it for universities — has increased from $478 million in 2001 to $709 million this year, up 48%. But the NSF tends to fund smaller, more focused efforts. And because contract awards are based on peer review, bidders are less likely to take the kinds of chances that Licklider would have favored.

"At NSF, people look at your proposal and assign a grade, and if you are an outlier, chances are you won't get funded," says Victor Zue, who directs MIT's Computer Science and Artificial Intelligence Laboratory, the direct descendent of MIT's Project MAC, which was started with a $2 million ARPA grant in 1963. "Whereas at DARPA, at least in the old days, they tend to fund people, and the program managers have tremendous latitude to say, 'I'm just going to bet on this,' at NSF you don't bet on something."

Farber, who sits on a computer science advisory board at the NSF, says he has been urging the agency to "take a much more aggressive role in high-risk research."

"Right now, the mechanisms guarantee that low-risk research gets funded," he explains. "It's always, 'How do

*Continued on page 50*

## Troubling Trends

**The Computing Research Association in Washington is concerned about a decline in overall Defense Department spending on science and technology. It also worries about these trends:**

- **DARPA's recent move to a "milestone"-based approach to funded research, where programs are evaluated on a 12-to-18-month cycle with "go/no go" decisions at each step. It encourages the proposing of less-than-innovative research and poses considerable logistical challenges to university-based researchers.**
- **A trend at DARPA to turn formerly unclassified research projects "black," or classified. A number of areas should be classified for national security reasons, but the CRA is concerned that some programs may be withheld from public scrutiny simply because they are controversial.**

**SCIENCE AND TECHNOLOGY FUNDING BY THE U.S. DEPT. OF DEFENSE (IN MILLIONS)**

| ACCOUNTS | FY 2006 LEVEL | FY 2007 ESTIMATE | FY 2008 REQUEST | $ CHANGE FY 2007 to FY 2008 | % CHANGE FY 2007 to FY 2008 |
|---|---|---|---|---|---|
| Total science and technology | $13,272 | $13,325 | $10,772 | -$2,553 | -19% |
| Total basic research | $1,457 | $1,563 | $1,428 | -$135 | -8.6% |
| Total applied research | $4,948 | $5,329 | $4,357 | -$972 | -18% |
| Total advanced technology development | $6,866 | $6,432 | $4,987 | -$1,445 | -22.4% |

SOURCE: COMPUTING RESEARCH ASSOCIATION

1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983

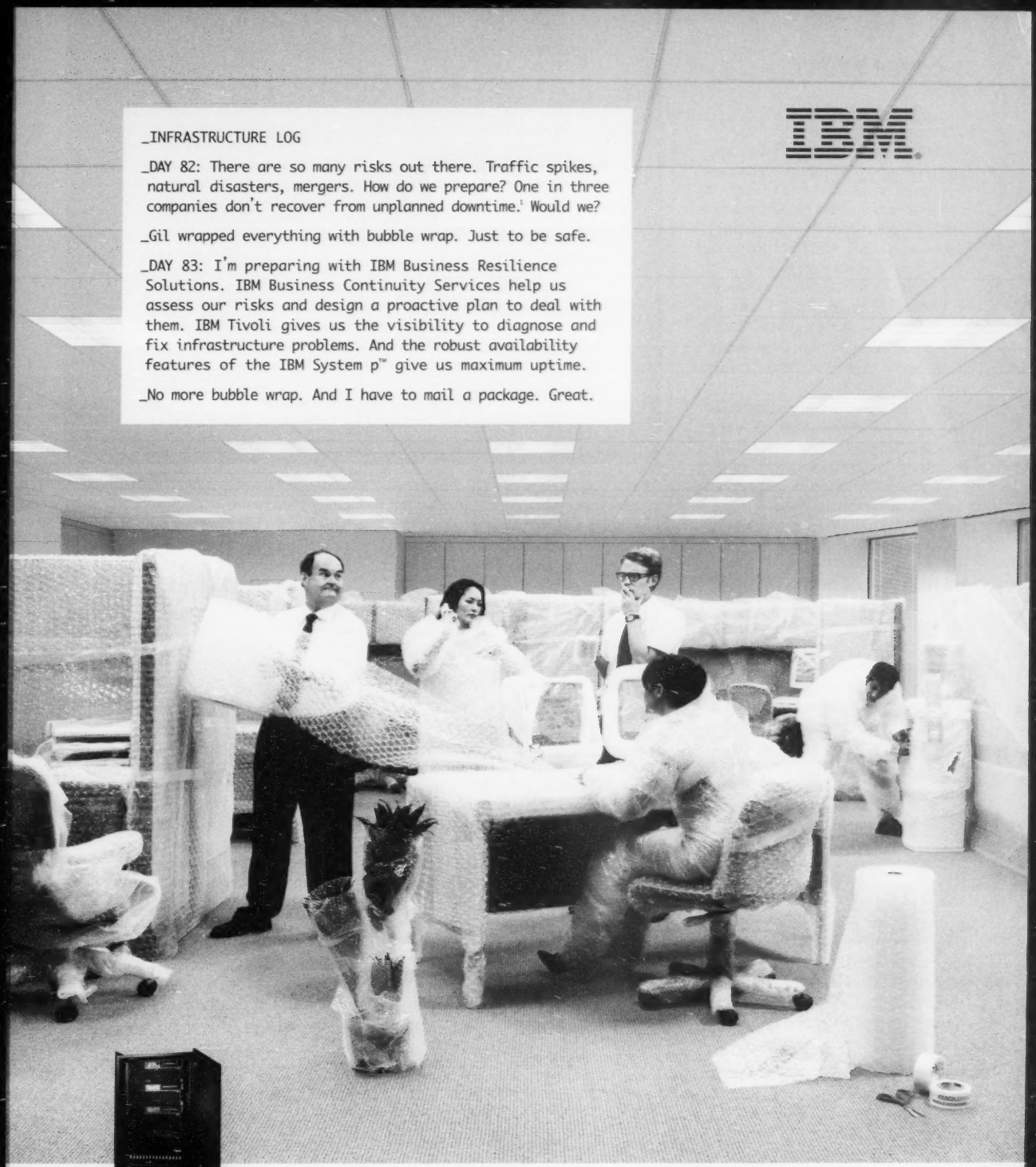
**SPRING 1973**
Bob Kahn of DARPA asks Stanford University's Vinton Cerf to help him design new communications protocols for the Arpanet.

**1978**
Kahn kicks off the Very Large Systems Integration (VLSI) Project, which will spawn the Berkeley RISC processor, the Stanford MIPS processor, workstations, and many advances in chip design and manufacturing.

**1981**
Andy Bechtolsheim and Forest Baskett demonstrate the "Stanford University Network workstation," which will become the Sun-1 workstation.

**1982**
James Clark founds Silicon Graphics based on ideas from DARPA-funded research. DARPA pours $93 million into VLSI research.

**1983**
DARPA launches the 10-year, $1 billion Strategic Computing Initiative, focused on artificial intelligence, chip design and new architectures such as parallel processing supercomputers.


_INFRASTRUCTURE LOG
_DAY 82: There are so many risks out there. Traffic spikes, natural disasters, mergers. How do we prepare? One in three companies don't recover from unplanned downtime.[1] Would we?
_Gil wrapped everything with bubble wrap. Just to be safe.
_DAY 83: I'm preparing with IBM Business Resilience Solutions. IBM Business Continuity Services help us assess our risks and design a proactive plan to deal with them. IBM Tivoli gives us the visibility to diagnose and fix infrastructure problems. And the robust availability features of the IBM System p™ give us maximum uptime.
_No more bubble wrap. And I have to mail a package. Great.
IBM
Tivoli.
Take the business continuity assessment at:
IBM.COM/TAKEBACKCONTROL/READY

[1]Source: "Business Continuity Unwrapped," Continuity Central, 2006, www.continuitycentral.com/feature0358.htm.

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*Continued from page 48*

you know you can do that when you haven't done it?' A program manager is going to tell you, 'Look, a year from now, I have to write a report that says what this contributed to the country. I can't take a chance that it's not going to contribute to the country.' "

A report by the President's Council of Advisors on Science and Technology, released Sept. 10, indicates that at least some in the White House agree. In "Leadership Under Challenge: Information Technology R&D in a Competitive World," John H. Marburger, the president's science adviser, said, "The report highlights in particular the need to . . . rebalance the federal networking and IT research and development portfolio to emphasize more large-scale, long-term, multidisciplinary activities and visionary, high-payoff goals."

## NO HELP FROM INDUSTRY

The U.S. has become the world's leader in IT because of its unique combination of government funding, university research, and industrial research and development, says Ed Lazowska, a computer science professor at the University of Washington in Seattle.

ED LAZOWSKA

But industry, like the government, has turned away from long-range research, he says.

According to the Committee on Science, Engineering and Public Policy at the National Academy of Sciences, U.S. industry spent more on tort litigation than on research and development in 2001, the last year for which figures are available. And more than 95% of that R&D is in engineering or development, not long-range research, Lazowska says.

"It's not looking out more than one product cycle; it's building the next release of the product," he says. "The question is, where do the ideas come from that allow you to do that five years from now?"

A great deal of fundamental research in IT used to take place at IBM, AT&T and Xerox, but that has been cut way back, Lazowska says. "And of the new companies — those created over the past 30 years — only Microsoft is making significant investments that look out more than one product cycle."

Lazowska isn't expecting another event like Sputnik. "But I do think we are likely to wake up one day and find that China and India are producing far more highly qualified engineers than we are," he says. "Their educational systems are improving unbelievably quickly."

Farber also worries about those countries. The modern Sputnik scenario he envisions is to "wake up and find that all our critical resources are now supplied by people who may not always be friendly." He recalls the book *The Japan That Can Say No*, which sent a Sputnik-like chill through the U.S. when it was published in 1991. The book suggested that Japan would one day outstrip the U.S. in technological prowess and thus exert economic hegemony over it. "Japan could never pull that off because their internal markets aren't big enough," Farber says. "But a China that could say no, or an India that could say no, could be real."

Some of the cutbacks in DARPA funding are welcome, MIT's Zue says. "Our reliance on government funding is nowhere near what it was in 1963," he says. "In a way, that's healthy, because when a discipline matures, the people who benefit from it ought to begin paying the freight."

"But," Zue adds, "it's sad to see DARPA changing its priorities so that we can no longer rely on it to do the big things." ■

**FOR A Q&A WITH THE 'GODFATHER' OF ARPA, SEE THE GRILL, PAGE 20.**

# DARPA's Response

DARPA continues to be interested in high-risk, high-payoff research," says Jan Walker, a DARPA spokeswoman. She offers these examples of DARPA's current research efforts:

- Computing systems able to assimilate knowledge by being immersed in a situation
- Universal language translation
- Realistic agent-based societal simulation environments
- Networks that design themselves and collaborate with application services to jointly optimize performance
- Self-forming information infrastructures that automatically organize services and applications
- Routing protocols that allow computers to choose the best path for traffic, and new methods for route discovery for WANs
- Devices to interconnect an optically switched backbone with metropolitan-level IP networks
- Photonic communications in a microprocessor having a theoretical maximum performance of 10 TFLOPS

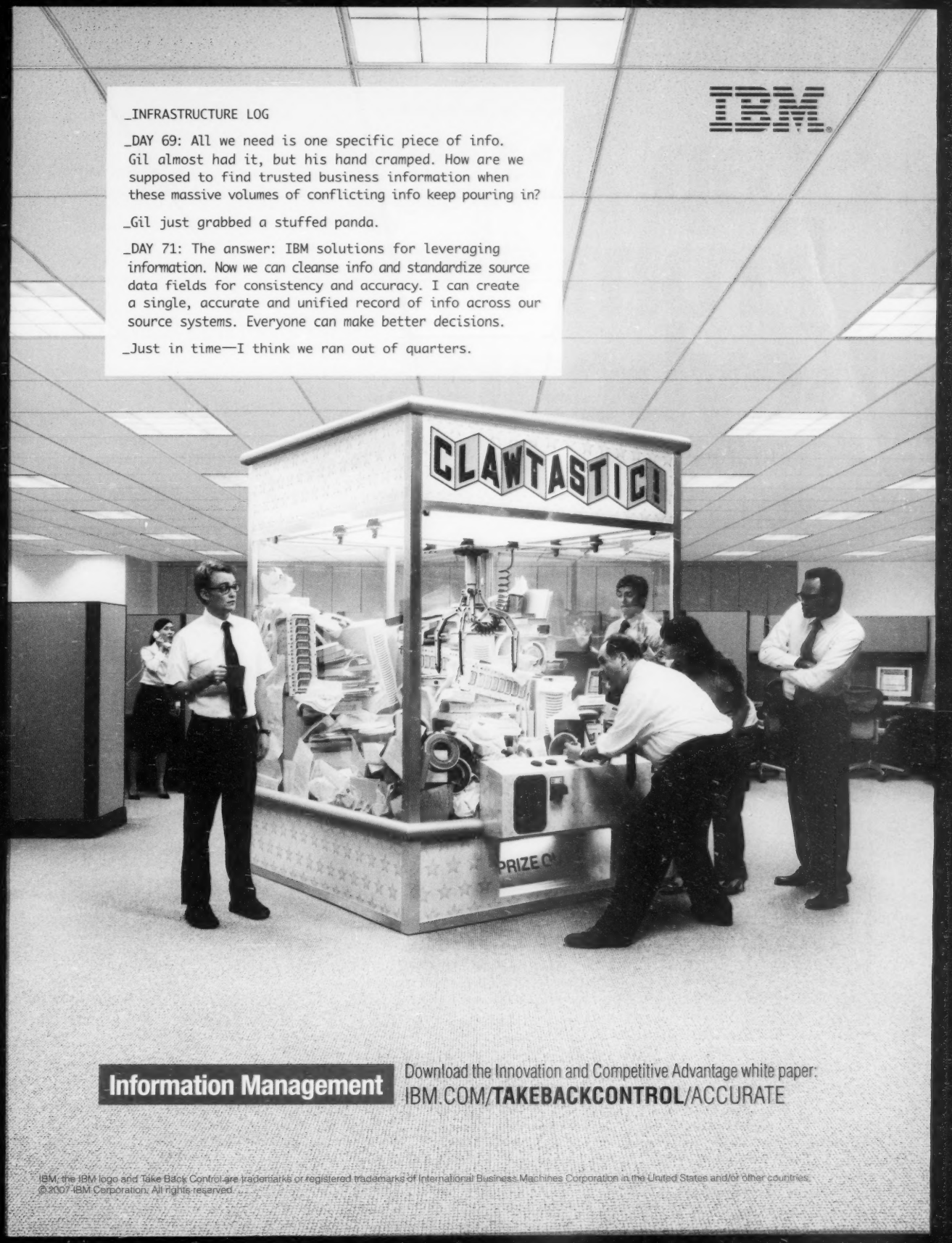
**1984** DARPA awards $4.5 million to Thinking Machines Corp. to build a 64,000-processor supercomputer based on DARPA VLSI principles.

**1986** The National Science Foundation debuts NSFnet, the first major Internet backbone.

**AUGUST 1987** In response to Japanese market gains, 14 U.S. semiconductor makers form Sematech to improve manufacturing techniques. In 1988, Congress authorizes DARPA to contribute $100 million over five years to Sematech.

**1988** A National Research Council committee, chaired by Kleinrock and with Kahn as a member, publishes "Toward a National Research Network." It influences Sen. Al Gore and ushers in national, interconnected high-speed networks.

**1990** The Arpanet is decommissioned.


_INFRASTRUCTURE LOG
_DAY 69: All we need is one specific piece of info. Gil almost had it, but his hand cramped. How are we supposed to find trusted business information when these massive volumes of conflicting info keep pouring in?
_Gil just grabbed a stuffed panda.
_DAY 71: The answer: IBM solutions for leveraging information. Now we can cleanse info and standardize source data fields for consistency and accuracy. I can create a single, accurate and unified record of info across our source systems. Everyone can make better decisions.
_Just in time—I think we ran out of quarters.
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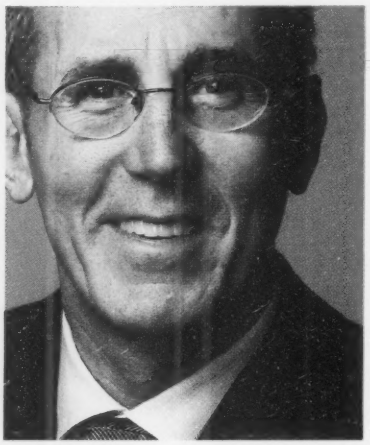
# Step Away From the Keyboard

## (AND OTHER PRODUCTIVITY TIPS)



How to do more work in less time and get your life back.

*When you need to get more done, working longer is counterproductive. That's the message from* **Tony Schwartz** *in this month's* Harvard Business Review. *Schwartz is the president and founder of the Energy Project in New York and a co-author of* The Power of Full Engagement *(Free Press, 2003). He told* Computerworld's *Kathleen Melymuka that productivity isn't about time, it's about energy.*

**You write that working longer hours isn't the solution to the increasing pressure many of us feel at work. Why?** Because the fundamental mistake that organizations make with their people is to treat them as computers — operating for very long periods at high speeds running multiple programs at the same time. In fact, human beings are not designed to be linear, but rather to pulse — to move between expenditure of energy and renewal of energy. When we establish that rhythm, we're most productive and most sustaining.

**How does that work?** When I wrote a book about this work, I worked in four 90-minute "sprints" a day and I didn't allow myself to be interrupted during those periods. In between each, I fully disengaged for 20 to 30 minutes — and I don't mean I surfed the Web or answered e-mail. Instead, I either had something to eat with my family, took a run or spent time reading the newspaper. I was vastly more efficient when I was working because I wasn't interrupted, and when I wasn't working, I was truly refueling. I wrote the book in 90 days, working half the number of hours each day that I had for previous books [which had taken a year to write].

**How do emotions play into energy?** Positive emotions serve performance. Negative emotions engage the sympathetic nervous system: fight or flight. Thinking and focus degrade, and because all emotions are contagious, negative ones drag the people around you down too.

**You say that the stories we tell ourselves affect our emotions. What do you mean?** It's not the facts that influence our emotions, it's the story we tell about those facts. And we have a choice about the stories we tell. To help people tell stories that serve them better, we encourage them to look for the story they would tell at their best. In the case of your boss [yelling at you], the story doesn't have to be "He's a jerk" or "I'm no good," but perhaps, "He's probably having a bad day, and in any case, part of what he said is right, and I can learn from it." People can get accustomed to telling more empowering stories about challenging circumstances. The result is that they feel better, and ultimately they perform better.

**You also write about focus, but isn't multitasking necessary?** We've lost sight of the power of absorbed focus — doing one thing at a time. The evidence is pretty consistent that if you switch attention from a primary task to a secondary one, the time it takes to complete the [first task] increases by an average of 25%. Imagine the impact of e-mail, which many people now check 50, 75 and 100 times a day. You may be able to accomplish 100 tasks in a day, but if you aren't doing any of them really well, how much value are you adding? ■

### Change Your Viewpoint

Negative emotions that drain energy often come from seeing your situation – and telling your internal story – through a "victim lens," says Tony Schwartz. An easy way to change your story is to view it through any of these lenses:

**REVERSE LENS: What might the other person in this conflict say, and in what ways might that be true?**

**LONG LENS: How will I most likely view this situation in six months?**

**WIDE LENS: Regardless of the outcome of this situation, how can I grow and learn from it?**

# GREAT CAREER ADVICE I IGNORED

## The road to success isn't always on the map. By Mary K. Pratt

CLIMB THE CORPORATE LADDER. Keep your eye on the ball. Pay your dues. A lot of the conventional wisdom about how to succeed in your career is sound, and the oft-recommended linear path upward frequently works well enough.

Many successful IT leaders are iconoclasts, however. They went against the grain, ignored advice or turned away from trends to find ways that were right for them. Here, they share some of their stories about the junctures where they disregarded prescribed career road maps, and they reveal how those choices helped them make it to the top.

### Brian L. Abeyta

Abeyta

■ **Advice I Didn't Take:** "I was advised early in my career to take a road-warrior-type consulting job that would expose me to a wide variety of business areas. What didn't seem right was the potential impact it would have on my young family," says Brian L. Abeyta, who decided instead to try his luck as an operations manager at a large telecommunications company doing innovative work.

■ **The Outcome:** "I was in a position where I learned from some really sharp executives. They helped me to see how they maneuvered their careers, how they managed and led in the private sector, [how] to be bold," says Abeyta, now vice president of the IT management office at insurance provider Aflac Inc. in Columbus, Ga. He says he also saw how they successfully balanced their personal and professional lives.

### Bruce Brody

■ **Expected Move I Didn't Make:** Bruce Brody started his career in the intelligence community, where most of his colleagues were moving ahead within that field. "But this was the 1980s, and computers were just coming into the mainstream in the federal environment. I decided to take a three-year stint in private industry to learn computer security in 1990 to '93 and then return to federal service as an information security professional," he says.

■ **The Outcome:** "That move resulted in my becoming the first executive-level chief information security officer on the civilian side of the federal government, and I'm still the only person ever to have served as the CISO at two cabinet-level departments," says Brody, now vice president of information assurance at Arlington, Va.-based CACI International Inc., which provides IT and network systems for national security, intelligence and e-government initiatives.

## M. Lewis Temares

Temares

■ **Expected Move I Didn't Make:** Job-jumping is a tried-and-true method of leveraging your skills to get ahead quickly in IT. But it wasn't right for M. Lewis Temares, CIO at the University of Miami. "There's something to be said for not jumping," he says.

■ **The Outcome:** Temares has built a successful career and developed a well-recognized IT organization during his 27 years at the University of Miami. "If you show you're a believer in the company, the people who work for you will be too," he says.

## Dick Daniels

■ **Advice I Didn't Take:** When Dick Daniels started in technology, he was advised to build his career within the IT organization. "At that time, technology was emerging as a true profession, and there was a large demand for technologists. But I realized that IT is only useful when you apply it to a problem," he says. So he took a program manager's position and later became a chief operating officer.

■ **The Outcome:** Daniels is now CIO for both the auto finance line and the Greenpoint Mortgage business at Capital One Services Inc. in McLean, Va. He says his experience outside of IT accelerated his advancement into the executive ranks. "The advantage I had was some dedicated years to develop my business knowledge," he says.

Daniels

## Autumn Bayles

■ **Advice I Didn't Take:** Many IT workers are advised to specialize in a specific technology, but Autumn Bayles didn't want to do that. Instead, she pushed herself to continually work with new technologies and applications.

Bayles

■ **The Outcome:** "I was a bit of a generalist, but it helped me progress more, because I was never so valuable that they were afraid to let me do anything else," Bayles says. She credits her diverse professional background with helping her get into the executive ranks. She was CIO at Tasty Baking Co. in Philadelphia from 2003 and 2006 and is now Tasty's senior vice president of strategic operations.

## Howard Schmidt

■ **Advice I Didn't Take:** "People talk about how you have to check the boxes, how you have to hold this position before you hold that one," says Howard Schmidt, a board member of

The bungee cord for the modern IT executive.

# A GRAIN OF SALT

**How should you evaluate well-intended career advice? Researchers, career coaches and recruiters weigh in with these thoughts:**

- **Look inward. Consider how the advice fits in with your own goals and objectives.**
- **Get multiple perspectives. A professional mentor knows what makes smart business sense, but family and friends can help you assess advice from a personal perspective.**
- **Think long term. Ponder how your decision will affect you in five or 10 years.**
- **Keep an open mind. Don't rule out advice because the options now in front of you weren't among your original goals.**
- **Consider the source. Some mentors truly have your best interests in mind; others' advice might be clouded by their own issues.**
- **Make a list, but trust your gut. Write down the pros and cons of following the advice so you can analyze it. Weigh the results against how you actually feel about the situation. A long list of pros shouldn't win if the advice makes your stomach turn.**

**– MARY K. PRATT**

the nonprofit (ISC)², the International Information Systems Security Certification Consortium. He says he chose not to follow a prescribed career path and instead looked for opportunities to use his talent and expertise in situations "where there was something new to be built or something in existence that needed to be fixed."

■ **The Outcome:** Schmidt says that by finding those opportunities, he was able to accelerate his career through high-profile jobs such as White House cybersecurity adviser and chief security officer at Microsoft Corp. and eBay Inc.

Schmidt

## John Glaser

■ **Expected Move I Didn't Make:** Like most college graduates, John Glaser was expected to join the stampede into professional life. Instead, after graduating from Duke University in 1976, he went to work at a salmon cannery in Alaska, hitchhiked to Panama and then headed back to North Carolina to be with his college sweetheart. Glaser says he didn't know what he wanted to do for work at the time, and he didn't want to rush into the wrong job just to get his professional life started.

Glaser

■ **The Outcome:** While living in North Carolina, he got a tech-related job at the Research Triangle Institute working on the National Medical Care Expenditure Survey. Something clicked, and Glaser settled into a career in health care IT. He is now CIO at Partners HealthCare Inc. in Boston. He has also been married for 27 years to the woman he went back for. ■

**Pratt** *is a* Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

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# Online Social Networks

## These sites can facilitate connections in your industry or around the world. By Russell Kay

### Definition

**Online social networks are Web sites that enable people to create a network of connections to other individuals. Through the Internet communities that make up social networks, people can contact others they would like to know for personal or professional reasons but whom they might otherwise be unlikely to meet.**

SOCIAL NETWORKS (most often hosted on Web sites) allow people to communicate with others whom they may or may not know. They include dating sites, professional sites, chat rooms, community sites and bulletin boards, but not venues whose primary purposes are nonsocial, such as job search sites. What makes online social networking unique is the ability to define one's own social network and interact in new ways. Indeed, users on many of these sites aren't looking to meet new people but to communicate with others who are already part of their social networks.

### EARLY CONNECTIONS

While many early Internet mechanisms (such as Usenet bulletin boards) offered a form of social networking, the first site specifically for networking might have been Classmates.com. Founded in 1995, Classmates.com fosters relationships based on high school and college affiliations. Next, in 1997, came SixDegrees.com, where users can seek connections based on any existing relationships.

The biggest impetus for social networking, however, was the rapid growth of blogging. Blogs began as online diaries, but today the blogosphere is a popular worldwide medium for public and private discourse, citizen journalism and political action.

After blogs came more complex sites designed specifically to help people communicate and meet new friends or colleagues. Friendster, MySpace and Facebook have had remarkable success in the personal realm. Sites like LinkedIn and Ryze facilitate professional connections.

Today, online social networking happens through a variety of mechanisms: dedicated personal and professional networks, online multiplayer games, services focused on specific goals such as dating or matchmaking, and even graphical cyberworlds. According to a national survey by the Pew Internet & American Life Project, 55% of all online U.S. teens use social networking sites.

### HOW THEY WORK

Most social networking sites have users create an individual profile within the system that defines them or expresses their personality. Most sites let users upload photos, and some allow other multimedia content.

Users typically identify friends already in the system. The term *friends* means others with whom a user has or would like to have some type of relationship. Some sites require these relationships to be OK'd by the other person and some don't. Profiles may be public and accessible by anyone or restricted to designated friends.

Most social networking sites display a list of the person's friends, with links, so that viewers can visit the friends on the list — and then, in turn, visit the people on the friends' lists of friends. An individual may create multiple online identities or personae; user data is rarely verified or checked.

Most social networking sites allow users to leave messages or comments on their friends' pages or profiles. Comments are usually displayed in reverse chronological order, open to anyone who can view the profile. Visitors can also leave private messages. ■

**Kay** *is a* Computerworld *contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.*

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## New Virtual Horizons

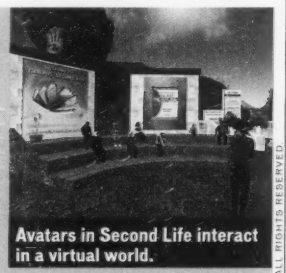
**A recent development – long predicted in popular fiction – is the advent of graphical virtual worlds, which are sites where users roam around using avatars, or synthetic personae, learning about the online locale's culture and societies and meeting others.**

**With something of the feel and action of a computer game, Second Life is the standard-bearer for such applications, having risen to enormous popularity since its 2006 beginning.**

**One important key to Second Life's success is the way it has been adopted by commercial marketers as a medium in which to promote products and services available in the real world.**

**Second Life creator Linden Research Inc. plans to expand the site to portable devices like mobile phones.**

**– RUSSELL KAY**



**Avatars in Second Life interact in a virtual world.**

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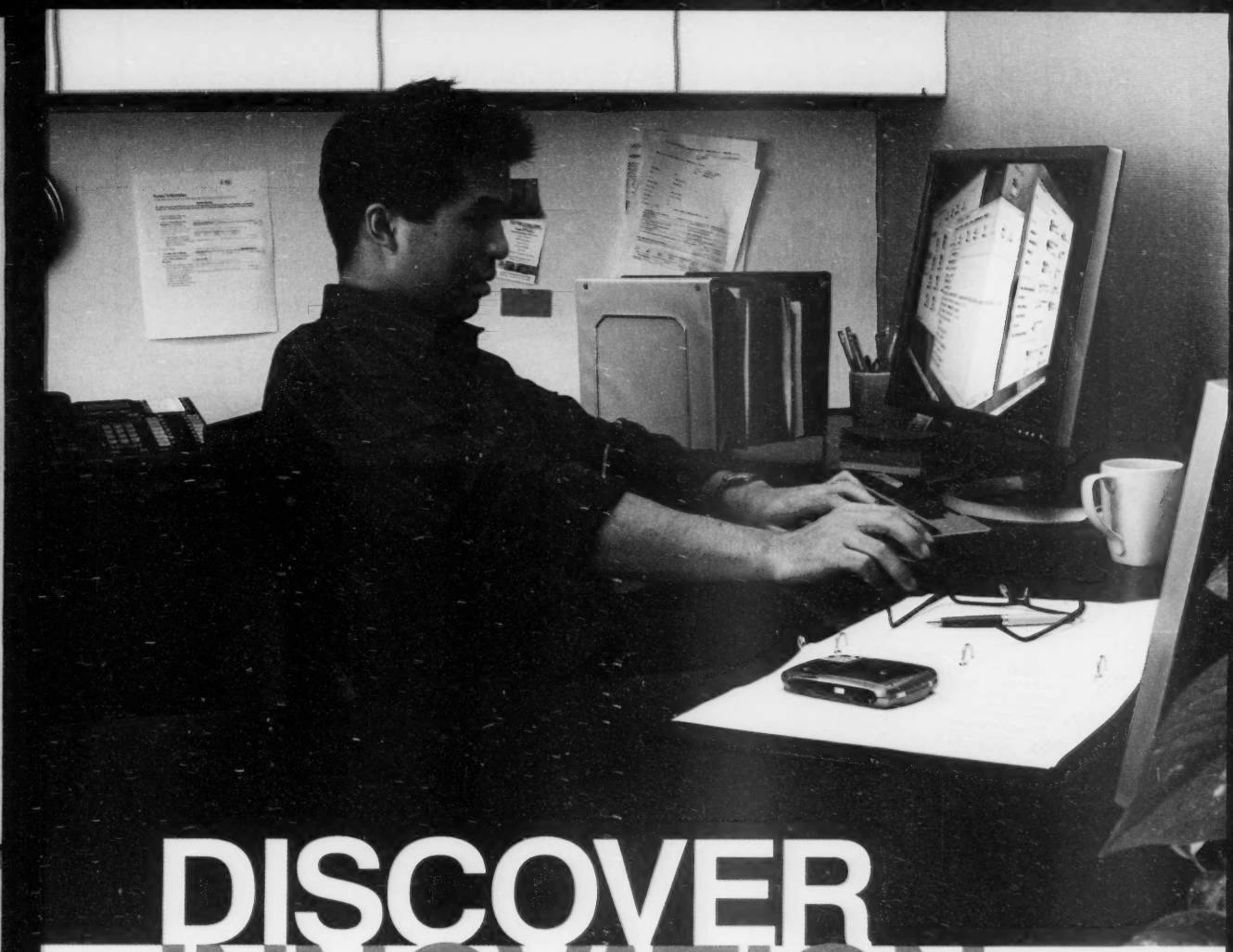

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# Did Someone Say 'Extra Money'?

## When your CIO **invites** you to come up with a **wish list,** some **restraint** is advisable.

**Trouble Ticket**

**ISSUE:** There's extra money to spend, but only reasonable requests will get funded.

**ACTION PLAN:** Focus on fast deployments and low overhead.

HOW OFTEN do you hear, "We have some extra money to spend, so tell me what you'd like to purchase"?

Those words are certainly rare in my company, so when my CIO asked his direct reports to draft wish lists, I was quick to spin up Microsoft PowerPoint and put together a set of slides.

This wasn't a free-for-all, of course; it was a one-time windfall. The money had to be spent quickly, so there was no point in requesting the deployment of new infrastructure, which would require a dedicated project manager and tons of resources. I kept my list short, focusing on things that could be rolled out quickly and yet add value. Here's my list, and some of my rationale.

■ **Secure FTP.** Currently, we're using an old Solaris server that's sitting in our DMZ and running an old version of WU-FTP. Neither the server nor the operating system is supported any longer. It's far from a secure setup (all data is passed in cleartext), so it's solely for internal use. We need something that we can let our customers and partners use and that would be acceptable to use during mergers, acquisitions and joint ventures. I'd like to be able to accommodate various methods of FTP, including Web-based uploads and downloads. And I want encryption on the hard drive and for all transmissions and credentials.

■ **SecurID two-factor authentication for Microsoft Outlook Web Access (OWA).** It would cost us nothing to enable SecurID for our OWA servers, and it's a trivial configuration. But we would have to issue $75 tokens to almost every employee. With 7,000 workers, that could be an expensive proposition. And then there's the overhead of additional head count to manage the deployment and take help desk calls.

**■ I kept my list short, focusing on things that could be rolled out quickly and yet add value.**

■ **A security policy compliance and confirmation tool.** We have lots of security policies but no way to ensure that employees have read them. We place our policies on the corporate Web site, which is an improvement on three-ring binders only in that they don't collect dust on the bookshelf. The policies are available to all, but people don't know about them and aren't strongly encouraged to read them. Policies that no one knows about don't accomplish anything, but there's another really good reason to be able to track employees' awareness.

As regular readers will recall, earlier this year we discovered by chance that one of our employees was forwarding source code algorithms to his personal e-mail account. The U.S. attorney was involved in the case, but in the end, we couldn't prove that the employee knew that what he had done was against our policy.

■ **A comprehensive vulnerability assessment.** Things have been moving too fast around here for someone as busy as I am to do all the vulnerability assessments that would seem prudent. I am particularly concerned right now about our recent IP telephony and SAP Basis deployments. IP telephony was deployed on a fast track and in a limited fashion about a year ago, and we plan to expand the technology's use. Before we do that, I want some professional reassurance that we have thoroughly mitigated the risks that IP telephony and all its bells and whistles can bring.

We use SAP for financials and recently installed Basis as the middleware for providing security controls around access and administration of the data and components. The project had security at its heart, but I've learned that just because you purchase "security," that doesn't mean it will be deployed in a secure manner. I want to hire some experts to audit our implementation.

So, that's my list. I think it's all reasonable, and I expect we will get the needed funding and support. ■

*This week's journal is written by a real security manager,* **"Mathias Thurman,"** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

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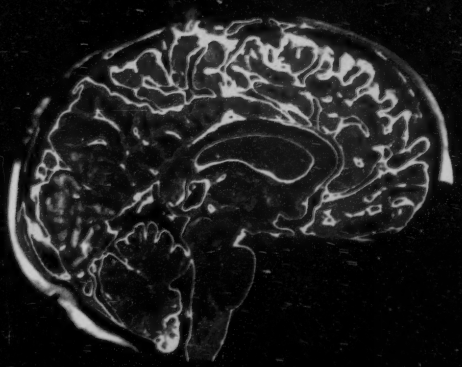

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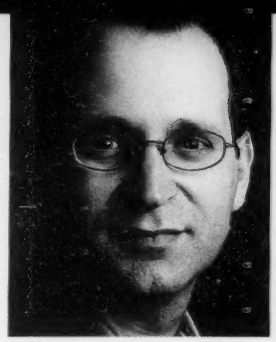
■ OPINION

Paul Glen

# So You Want To Be a Manager



AS FALL begins, my thoughts often turn to the future. One of the common questions for IT professionals thinking about the future is whether to pursue a career in management.

It's a good time to think about this if you've been purely technical for a long time. The coming wave of baby boomer retirements will leave plenty of management jobs available. But how do you know whether management is really for you?

Here are a few thoughts for the curious.

**REASONS TO NOT GO INTO MANAGEMENT:**

**Desire for money.** While management jobs can pay well, not all do. In fact, when I managed a large group, there were a number of purely technical people who reported to me who made more than I did. And I thought that was appropriate. Pay is not a matter of position, but of supply and demand. Rare and valuable technical skills may be worth more than relatively common management skills.

**Desire for power.** One of the best-kept secrets of management is that the higher up you go in an organization, the more — not less — dependent on others you become. Successful managers know that power is mostly an illusion. The more people you manage, the more your success is the sum total of theirs. Alone, you are just a person with some ideas. The desire to dominate generally foments coups, not loyalty or productivity.

**Desire for status.** There are lots of ways to earn the respect and admiration of your peers. Becoming their manager is not one of them. In fact, when you start to manage a group of people who used to be your peers, they often, although not always, develop resentment and lose respect for you. Management can be a lonely job, even though you're constantly surrounded by people.

**■ There are lots of ways to earn the respect and admiration of your peers. Becoming their manager is not one of them.**

**Desire for easy work.** The illusion of an easy life is another poor reason to go into management. You may think that the boss doesn't work hard; he just goes to meetings. While the work of management is completely different from technical work, it's not easy to do it well.

**REASONS TO CONSIDER MANAGEMENT:**

**Desire to think about people and technology.** Most of us who grew up technical think about machines. If you want to start to explore the complexities of humanity, management is a good way to do it. But be prepared to change the ways you think. People problems often are not subject to the same forms of analysis that work so well on engineering problems.

**Desire to help others grow.** Good managers are also good teachers. They may not lecture, but they do think about how to help their people grow and develop. To be a good manager, you need to derive personal satisfaction from seeing others advance.

**Desire to get things done.** Management isn't just about being warm and fuzzy. You still need to get things done. If you have a strong desire to accomplish things in a work context and are willing to help other people do it with you, then management may be a good choice.

Obviously, I believe that management can be a great job and a noble calling, but it isn't for everyone. Think carefully before you make a major commitment to a career change.

If you're curious about management, talk to your boss about trying out a small assignment before you make a major commitment. You may find that it's a great fit, or you may streak back to the keyboard. ■

**Paul Glen** *is the founder of the GeekLeaders.com Web community and author of the award-winning book* Leading Geeks: How to Manage and Lead People Who Deliver Technology *(Jossey-Bass, 2003). Contact him at info@paulglen.com.*

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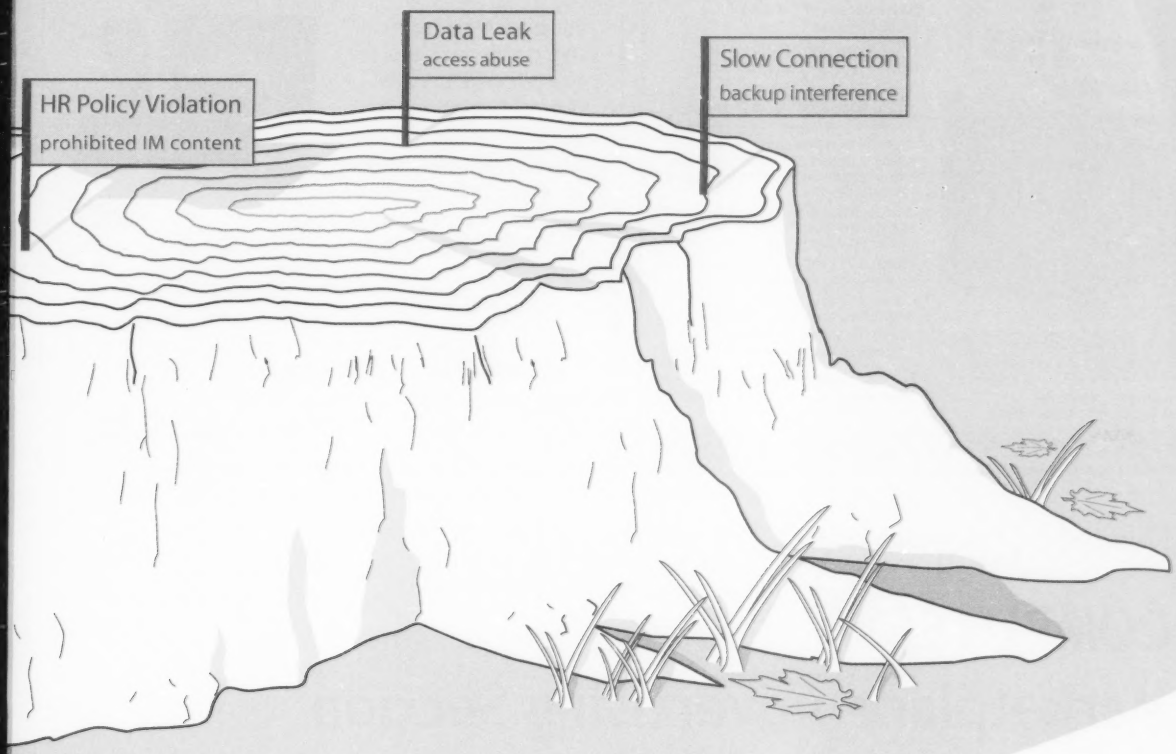


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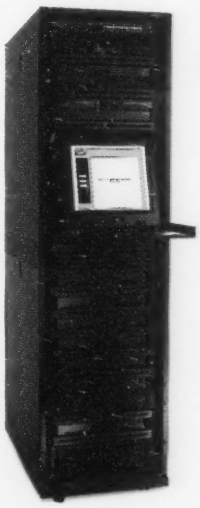

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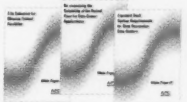

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# Career Watch

## The Worst Answer to Give in a Job Interview

**When the interviewer asks, "Do you have any questions?" the worst answer you could possibly give is, "No."** That makes you look unprepared, uninterested and uneducated, according to the Career Hub blog (*http://careerhub.typepad.com*).

So, how do you know what to ask? The best questions usually stem from the dialogue that takes place during the interview process, but if that doesn't happen, come prepared with specific queries about the business or the position you're applying for. Some questions should pop into your head as you do upfront research on the company.

If nothing else comes to mind, a blog commenter noted that one of the best questions you can ask is, "What does success in this position look like?" It always impresses the hiring managers.

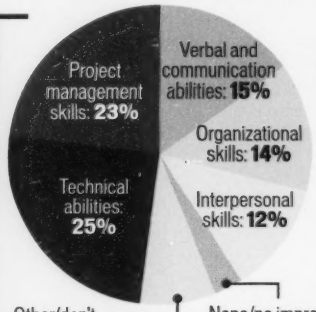
– MITCH BETTS

## The Graying Workforce

**Not surprisingly, these U.S. Census Bureau projections show older people making up an ever-larger percentage of the workforce in the decades to come.** What is surprising is that they show the 4-and-under crowd to be a steady presence in the "workforce," at just under 7% – but that's because the workforce and the overall population seem to be one and the same to the Census Bureau.

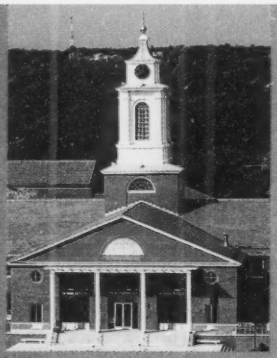
| Age | 2000 | 2010 | 2020 | 2030 | 2040 | 2050 |
|---|---|---|---|---|---|---|
| 0-4 | 6.8% | 6.9% | 6.8% | 6.7% | 6.7% | 6.7% |
| 5-19 | 21.7% | 20% | 19.6% | 19.5% | 19.2% | 19.3% |
| 20-44 | 36.9% | 33.8% | 32.3% | 31.6% | 31% | 31.2% |
| 45-64 | 22.1% | 26.2% | 24.9% | 22.6% | 22.6% | 22.2% |
| 65-84 | 10.9% | 11% | 14.1% | 17% | 16.5% | 15.7% |
| 85+ | 1.5% | 2% | 2.2% | 2.6% | 3.9% | 5% |

NOTE: YEARLY PERCENTAGES MAY NOT ADD UP TO 100 BECAUSE OF ROUNDING.




**CIOs were asked, "In which of the following areas do you think your IT staff could most use improvement?"**

SOURCE: NATIONAL POLL BY ROBERT HALF TECHNOLOGY OF MORE THAN 1,400 CIOs FROM A STRATIFIED RANDOM SAMPLE OF U.S. COMPANIES WITH 100 OR MORE EMPLOYEES



## Business Meets Academia

**>>> HOW U.S. COLLEGES AND UNIVERSITIES ARE WORKING WITH THE PRIVATE SECTOR TO DEVELOP NEXT-GENERATION IT LEADERS**

- **School: Bentley College**, Waltham, Mass.
- **Does it have an IT advisory council?** Yes, a formal advisory group of senior IT executives meets with Bentley's faculty on a quarterly basis to review recruiting issues IT executives are facing and the types of skills they're seeking.
- **IT executive feedback that has helped amend the curriculum:** For the past couple of years, Bentley's master's in IT program has required a full semester of business process management studies.
- **Number of degrees awarded in spring 2007:** Undergraduate: 66 (34 in computer information systems; 29 in information design and corporate communication; three in a information systems). Graduate: 58 (27 in human factors in information design; 31 master of science degrees in IT).

"What we're hearing from both sides, including recruiters, is that they need the technical skills and the business process skills," says William T. Schiano, associate professor and director of the master's in IT program at Bentley. "So we're addressing that on the graduate and undergraduate levels. We talk about manufacturing business processes and traditional supply chain management issues, and we also focus on services industries, whether it's a financial services or consulting businesses, and how that's different from traditional manufacturing businesses."

Those dual needs could lead to more changes to the Bentley curriculum, says Schiano. IT executives "are telling us they need people who can do ROI analysis and the profit and loss implications of the work they're doing," he says. "We already do some work with that in the program, but we're trying to do more of that, plus net present value."

Schiano says that technical skills in demand by the private sector include middleware technologies and .Net. Why? "Everyone is trying to move to a service-oriented architecture, so the two predominant areas are J2EE and .Net," he says.

Schiano also notes that half of the master's in IT students work full time, and some students will go to great lengths for internships.

"We're seeing a big increase among companies that want students to do internships abroad, the ability to work with offshore talent," says Schiano. For the past three years, "we've had students do internships in Ireland and China for U.S. companies," he notes. "They're really seeing the value of someone having spent six to 10 weeks with their company in China and then hiring them to a local office in the States."

– THOMAS HOFFMAN

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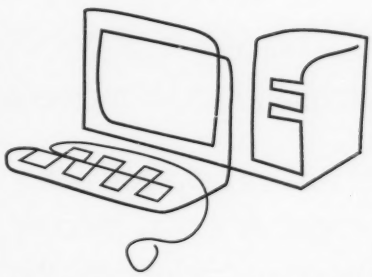

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# Shark Tank

## TRUE TALES OF IT LIFE AS TOLD TO SHARKY

### Right Again!

Production controller e-mails IT pilot fish with a problem: Controller is trying to enter orders into the manufacturing system, but he keeps getting an error that tells him to "check shop calendar." "I investigate, and the user is correct," fish says. "There *is* an error about checking the shop calendar, specifically that one exists for the date entered. Turns out the user entered production for 900,000 pounds of product. The capacity per hour is under 2 pounds – so the shop calendar would need to be entered for the next 66 years!"

### Get Physical

IT pilot fish's boss receives a request from the plant manager: "I want you to create a program that will physically stop workers from loading trailers if there's not a shipment date on the form." Sighs confused fish, "We're not sure if he wants us to hold them or punch them!"

### This Instant?

This company's help desk uses instant messaging to handle support for 55 remote sites. But it's not always smooth. User: "Can you put these two printers on my computer? I switched departments today." Pilot fish: "I have to jump on your computer and log on as me." User: "OK." Fish: "You ready?" User: "Anytime." Fish: "OK, I need you to log out." User: "OK." Pause. "Do you want me to log off?"

### Tough One

Trouble ticket says this printer needs to be fixed; it hasn't been working for three months. "I printed the test page, and it only printed with colors," says fish. "So I told the user to replace the black ink. Problem fixed! But why did it take them three months to call IT?"

### Work-around

Company acquires a competitor and then begins the process of converting the acquiree's BlackBerry users to the new owner's standard Windows Mobile devices. "One of their road employees said she was having trouble with her older BlackBerry and wanted to know if she could get it replaced," says a pilot fish on the scene. "Not all her keys were functioning. The company we acquired had refused to replace the device because of the cost. Our response was 'sure,' since it would be unusable without all the keys. She kept saying 'thank you' and telling us it would be much easier for her not to have to carry a thesaurus around all the time. Turns out whenever she was typing a word and it contained one of the nonfunctioning letters, she would use her college thesaurus to come up with a new word."

■ *Sharky wants you to send, transmit, convey your true, actual, bona fide tale of IT life to him at sharky@computerworld.com. You'll get, receive, collect a Shark shirt if I use it.*


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## ■ COMPANIES IN THIS ISSUE

**Page number refers to page on which story begins. Company names can also be searched at computerworld.com**


3Com Corp. ..... 10
Adobe Systems Inc. ..... 8
Advanced Micro Devices Inc. ..... 8
Advanced Research Projects Agency ..... 22, 45, 46
Aflac Inc. ..... 53
Anti-Phishing Working Group ..... 8
Apple Inc. ..... 41
AT&T Inc. ..... 10, 50
Bain Capital LLC ..... 10
Bentley College ..... 64
BP America Inc. ..... 8
Business Objects SA ..... 8
CACI International Inc. ..... 53
Capital One Services Inc. ..... 54
Carnegie Mellon University ..... 46
Carter & Burgess Inc. ..... 18
Central Desktop Inc. ..... 14
Cisco Systems Inc. ..... 12
Classmates Online Inc. ..... 56
Computing Research Association ..... 48
Cray Inc. ..... 45
Defense Advanced Research Projects Agency ..... 22, 45, 46, 50
Defense Research & Engineering ..... 22
Dell Inc. ..... 41
Duke University ..... 55
East Carolina University ..... 18
Eastern Michigan University ..... 8
eBay Inc. ..... 55
Electronic Data Systems Corp. ..... 10
Energy Project ..... 52
Facebook Inc. ..... 56
Forrester Research Inc. ..... 16
Friendster Inc. ..... 56
GlaxoSmithKline PLC ..... 16
Google Inc. ..... 22
GreenRoad Technologies Inc. ..... 20
Haier Co. ..... 12
HCL Infosystems Ltd. ..... 12
HealthBridge ..... 18
Hewlett-Packard Co. ..... 12
Huawei Technologies Co. ..... 10
IBM ..... 44, 46
IDC (India) Ltd. ..... 12
Intel Corp. ..... 8, 10, 16, 45
International Information Systems Security Certification Consortium ..... 55
Jostens Inc. ..... 18
JupiterResearch ..... 41
Knorr-Bremse GmbH ..... 18
Lenovo Group Ltd. ..... 12
Lexalytics Inc. ..... 20
Linden Research Inc. ..... 56
LinkedIn Corp. ..... 56
Medtronic Inc. ..... 16
Microsoft Corp. ..... 8, 10, 12, 41, 45, 50, 55, 58
MIT ..... 45
Morgan Stanley ..... 14
MySpace.com ..... 56
MySQL AB ..... 20
National Academy of Sciences ..... 50
National Endowment for Science, Technology and the Arts ..... 14
National Highway Traffic Safety Administration ..... 20
National Research Council ..... 50
National Science Foundation ..... 24, 48, 50
Oracle Corp. ..... 12, 20
Partners HealthCare Inc. ..... 55
Pew Internet & American Life Project ..... 56
Potomac Institute for Policy Studies ..... 22
President's Council of Advisors on Science and Technology ..... 50
Rand Corp. ..... 45
Research Triangle Institute ..... 55
Ryze Ltd. ..... 56
SAP AG ..... 8, 12, 58
Silicon Graphics Inc. ..... 46, 48
Sophos PLC ..... 12
Stanford University ..... 45, 46, 48
Stratavia Corp. ..... 20
Sun Microsystems Inc. ..... 8, 46, 48
Tasty Baking Co. ..... 54
Teradata ..... 45
TJX Companies Inc. ..... 10
U.S. Army ..... 6, 8
U.S. Census Bureau ..... 64
U.S. Department of Defense ..... 45, 48
U.S. Department of the Treasury ..... 10
U.S. Food and Drug Administration ..... 16
U.S. Government Accountability Office ..... 6
U.S. Securities and Exchange Commission ..... 10
University of California, Berkeley ..... 45, 46
University of California, Los Angeles ..... 46
University of Chicago ..... 22
University of Miami ..... 54
University of Utah ..... 45
University of Washington ..... 46, 50
VMware Inc. ..... 18
Windrush Frozen Foods Ltd. ..... 12
Xerox Corp. ..... 50



APC ..... 63
AT&T Wireless ..... 17
BI Perspectives Best Practices Awards Program ... 43
BI Perspectives Best Practices Supplement ..S1-S16
CA ..... 13
CDW Corp. ..... 59
Cognos ..... 54-55
dtSearch ..... 62
Hewlett-Packard ..... 22/23
IBM IT Campaign ..... 9, 11, 47, 49, 51
InterSystems ..... 15
Invest in Ontario ..... 21
LXE ..... 62
Microsoft Forefront ..... C2-1
Microsoft SQL ..... 19
Network Instruments ..... 61
Novell ..... 57
Oracle Corp. ..... S2, S8-S9, S16, C4
Samsung ..... 5
SAS ..... 3
SNW Best Practices Awards Program ..... 23
SNW Special Programs ..... 42
Verizon Wireless ..... C3


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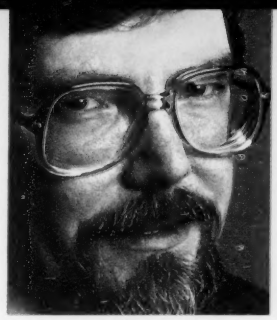
■ FRANKLY SPEAKING

Frank Hayes

# Conventional IT Wisdom



A FEW THINGS in IT remain true, despite the best efforts of vendor marketers, management gurus, industry analysts and *Computerworld* pundits to make everyone believe otherwise:

The Internet poses security risks. Always has. Always will.

Users don't understand IT — never have, never will. All they really understand is their jobs.

No project gets enough time, budget and resources to be done the way it should be done.

"Free" anything isn't.

Faster hardware is cheaper than faster software.

Vendors and consultants are trying to make as much money from customers as possible. It's up to us to get our money's worth. Caveat emptor.

The best technology doesn't always make a successful product. Then again, the best technology may not be what you need.

Some vendors really don't like some other vendors — so much that they're willing to let it get in the way of working with customers.

If nobody else is trying something, there's usually a reason. Maybe not a good reason, but a reason.

Faster hardware doesn't solve business problems — unless the business problem is slow hardware.

The CEO will always think consultants' ideas are good because he's paying good money for them.

Traffic expands to fill the bandwidth provided.

If you take something away from users, they'll sneak it in the back way anyhow.

The most powerful influence on CEOs' IT preferences are the people who write for airline in-flight magazines.

"More bandwidth/memory/storage/processing power than you'll ever need" will last you six months. A year, tops.

"We've never done it that way before" is a more powerful argument than any cost-benefit analysis.

**■ A good idea is no match for a bad habit.**

IT projects advance or die. Sometimes both. But if a project isn't advancing, it's dying.

Nobody ever got fired for buying the flavor of the month.

What counts isn't how much a product costs when you buy it. What counts is how much it costs before you finally shut it down.

Functionality isn't the same as usefulness.

When you just have a hammer, everything looks like a nail. Most IT people just have technology.

It always takes longer and costs more to fix it later.

The systems that last are the ones you were counting on to be obsolete.

A good idea is no match for a bad habit.

By the time your CEO has read about a technology, it's no longer a strategic advantage.

Ninety percent of a system's cost is still training people to use it.

IT projects fail. Large projects fail more often than small ones. So if failure isn't an option, you'll never do anything.

If you think your company's users are awful, just wait till you're on the Web and have customers of your own.

Exactly what you want always costs more than what you can afford — whether it's technology or IT employees.

Old ideas got that way because they proved useful.

Data isn't information. Information isn't knowledge. Knowledge isn't manageable.

Systems aren't made from metaphors, paradigms and methodologies. They're made from code, wires and hardware.

The Model T didn't become a standard because it was the best. It became a standard because it was the cheapest.

The hardest problems get solved last. ■

**Frank Hayes**, Computerworld*'s senior news columnist, is out sick this week. This column originally appeared in 2000. You can contact Hayes at frank_hayes@computerworld.com.*

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